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CATALOG OF PUBLICATIONS

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THE FUNCTIONS OF THE OFFICE ARE:

1. To serve eugenical interests in the capacity of repository and clearing house.

2. To build up an analytical index of the inborn traits of American families.

3. To train field workers to gather data of eugenical import.

4. To maintain a field force actually engaged in gathering such data.

5. To co-operate with other institutions and with persons concerned with eugenical study.

6. To investigate the manner of the inheritance of specific human traits.

7. To investigate other eugenical factors, such as (a) mate selection, (b) differential fecundity, (c) differential survival, and (d) differential migration.

8. To advise concerning the eugenical fitness of proposed marriages.

9. To publish results of researches.

CATALOG OF PUBLICATIONS.

A. BULLETINS.

This series, in octavo form, consists of studies intended for a wider circulation among those interested in the progress of Eugenics.

1. **Henry H. Goddard,** HEREDITY OF FEEBLE-MINDEDNESS. April, 1911, 11 pp., 15 pedigree charts..... $ .10

This reprint gives a brief account of the beginnings of field work at the Vineland Training School. An account is given of fifteen families and the results of various matings are set forth, including the cases where two successive marriages have been made by the same parents with very different consorts.

OUT-OF-PRINT

2. **Charles B. Davenport, H. H. Laughlin, David F. Weeks, E. R. Johnstone, Henry H. Goddard,** THE STUDY OF HUMAN HEREDITY. May, 1911, 17 pp., 6 plates (Out of print. Reprinted in Bulletin No. 7).

This was prepared as a handbook and guide to those who wish to do field work in Eugenics. It gives an account of the field worker and her methods; the chart and methods of platting it, and the abbreviations and symbols employed; the description, the terms to be used and avoided, and the methods of analysis. Two forms are given for written descriptions of the chart.

OUT-OF-PRINT

3. **Gertrude L. Cannon and A. J. Rosanoff,** PRELIMINARY REPORT OF A STUDY OF HEREDITY IN INSANITY IN THE LIGHT OF THE MENDELIAN LAWS. May, 1911, 11 pp., 12 charts (Out of print)..... $ .10

After a brief statement of the principles of heredity the authors analyze the twelve family histories; conclude that when both parents are neuropathic, all children will be neuropathic; and deduce other important results. The bulletin includes a discussion of the paper at the time it was read before the New York Neurological Society.

OUT-OF-PRINT

4. **C. B. Davenport and David F. Weeks,** A FIRST STUDY OF INHERITANCE IN EPILEPSY. November, 1911, 30 pp., 33 charts, 11 tables.. $ .20

This study is based upon 177 pedigrees obtained by careful researches made into the families that yield inmates of the Skillman Village for Epileptics. The results show clearly that the commoner form of epilepsy is the product of two defective germ cells, coming one from each side of the house. Evidence is advanced that in these strains the proportion of epileptics is doubling in successive generations. The effect of alcohol, and the question of social prophplaxis are discussed.

5. **A. J. Rosanoff and Florence I. Orr,** A STUDY OF HEREDITY OF INSANITY IN THE LIGHT OF THE MENDELIAN THEORY. October, 1911, 42 pp., 73 charts, 2 tables..... $ .15

An analysis of seventy-two families, representing 206 different matings with a total of 1,097 offspring; a demonstration that the neuropathic condition is inherited as a defect; a consideration of neuropathic equivalents, abnormal dispositions and symptoms; and an attempt to estimate the proportion of the population that carries our inheritable neuropathic taint.

6. **C. B. Davenport,** THE TRAIT BOOK. February, 1912, 52 pp., 1 colored plate, 1 figure..... $ .10

A first attempt to catalogue human traits: physical, nosological (pathological or teratological) and mental (including psychiatrical), amounting to about 1,170 in number. These are arranged according to a logical decimal system of classification following Mr. Melvil Dewey. An alphabetical index is also given.

7. **C. B. Davenport,** in collaboration with **Geo. S. Amsden, William F. Elades, Florence H. Danielson, Mary O. Dranga, W. E. Davenport, A. H. Estabrook, H. H. Goddard, Winifred Hathaway, W. H. Healy, August Hoch, E. R. Johnstone, H. H. Laughlin, Ruth S. Moxcey, Elizabeth B. Muncey, Helen T. Reeves** and **David F. Weekes,** THE FAMILY HISTORY BOOK, Sept., 1912, 16 figures and 5 plates, 101 pages..... $ .50

This was compiled to meet the need of sample family histories to show how they are prepared. There are chapters as follows: I. The Record of Family Traits. II. Data furnished by Genealogies, the Beecher-Foote family. III. Data furnished by Biographies; Example 1, Lyman Abbott; Example 2, George Bancroft. IV. The Records of Special Traits (red hair; hare-lip). V. Records of Recent Immigrants (The H . . . family from Sicily). VI. Records of Negro-white Crosses. VII. Records of the Feebleminded and Paupers (Emma H . . . ; the Nam family. VIII. Records of Epilepsy. IX. Records of the Insane: (a) Guide to Analysis of Personality: (b) Record of the C . . . family with much insanity; (c) Huntington's chorea. X. Records of the Criminalistic. XI. Records of Sex Offense (schedule of inquiries; inmate of a girls' home). Appendix. The Study of Human Heredity (Bulletin No. 2).

8. **Henry A. Cotton..** SOME PROBLEMS IN THE STUDY OF HEREDITY IN MENTAL DISEASES. Aug., 1912, 59 pp., 9 figures, 5 folded charts $ .15

The first 32 pages of this bulletin are devoted to the general consideration of the phenomena of human heredity and its specific application to mental disorders. This portion includes an explanation of the theories of Rudin and explains his method of graphic representation.

The second portion—pages 32 to 43—constitute a report on field work in eugenics done directly under Dr. Cotton's direction. This report is accompanied by five charts.

The third part of this bulletin is a bibliography on the related problems of psychiatry, from Rudin's work.

9. **Charles B. Davenport,** STATE LAWS LIMITING MARRIAGE SELECTION, EXAMINED IN THE LIGHT OF EUGENICS. June, 1913, 66 pp., 2 folded charts, 2 figures and 4 tables..... $ .40

An examination of certain State laws limiting marriage selection, to see in how far they square with modern biological knowledge. This consists of the following parts: I. Laws limiting the mental and physical condition of the consorts. Here the futility of laws against the marriage of the feebleminded, etc., as a substitute for segregation is insisted on. II. Laws limiting consanguinity in marriage. Here the inadequacy of general laws regarding permissible degrees of relationship in place of specific examination of family histories is emphasized. The possibility of cousin marriages that shall produce normal children is shown III. Miscegenation. The biological foundation of laws against the mixture of race are discussed. The "Negro-problem" is considered. IV. The physician certificate. V. State Eugenic Control, including the State Eugenic Board, the official physicians of the State and the field workers—a program for adequate state control of marriage.

10. Report of the Committee to study and to report on the best practical means of cutting off the defective Germ-Plasm in the American Population.

Part I. (Bulletin 10-a). THE SCOPE OF THE COMMITTEE'S WORK, by **Harry H. Laughlin,** Secretary of the Committee, February, 1914, 64 pp., 7 charts, 1 table..... $ .20

This bulletin reviews the history and work of the Committee and outlines the future line of study. Chapter I gives a chart of the phenomena of heredity, and a table of the numbers of the socially unfit, based upon defective inheritance, in the American population. In Chapter II the grouping of anti-social persons under "the 3 D's" is abandoned and the following ten classes substituted: 1. Feebleminded. 2. Pauper. 3. Inebriate. 4. Criminalistic. 5. Epileptic. 6. Insane. 7. Asthenic. 8. Diathetic. 9. Deformed. 10. Cacæsthenic. Each class is described as to its innate qualities. Chapter III. Reviews the various remedies suggested for cutting off defective human inheritance. The subjects are as follows: 1. Life segregation. 2. Sterilization. 3. Restrictive marriage laws and customs. 4. Eugenical education. 5. Systems of matings purporting to remove defective traits. 6. General environmental betterment. 7. Polygamy. 8. Euthanasia. 9. Neo-malthusianism. 10. Laissez-Faire. Summary. Chapter IV. Summary of the Preliminary Studies of the Committee.

Part II. (Bulletin 10-b). THE LEGAL, LEGISLATIVE AND ADMINISTRATIVE ASPECTS OF STERILIZATION, by **Harry H. Laughlin,** Secretary of the Committee. Feb., 1914, 150 pp., 1 map, 6 folded charts, 10 tables, 4 figures (pedigrees) ..... $ .60

In this bulletin the frontispiece is a map showing the States having sterilization laws. Chapter I discusses eugenical sterilization both with and without laws authorizing and regulating it. Chapter II gives a tabular analysis of all existing sterilization laws and gives also the full text and legislative history of each of the twelve existing statutes. Chapter III gives the histories, texts, tabular analysis and veto messages of the four sterilization bills which were vetoed, and of the one which was revoked by referendum. Chapter IV presents a tabular analysis of sterilization bills introduced into, but not passed by their respective legislatures. Chapter V reviews the litigation on the ex-

isting statutes. It gives the Washington and New Jersey decisions, the opinions of the Attorneys-General of Connecticut and California, and expert legal opinion on the general principle. Chapter VI is an account of the working out of the law in each of the twelve States. It gives the names and addresses of the executive agents, the history and extent of actual operations, a statement of the legal status of the situation, of appropriations available, etc. Chapter VII is a criticism of the existing laws. The laws are criticized and discussed under the following headings: 1. Motive and prevailing spirit. 2. Viewpoint as to the import of sterilization. 3. Executive agents provided. 4. Persons subject to the law. 5. Procedure in selecting persons for setrilization. 6. Nature of investigations demanded. 7. Criteria for determining upon sterilization. 8. Types of operations authorized. 9. Operability of the statute. 10. Appropriations available. Chapter VIII. Model Law, Principles, full text and explanatory comment. Chapter IX. Working out of the proposed program. This chapter includes a table showing the rate of working out of the proposed program of segregation in institutions, supported by sterilization whenever a potential parent of defectives is about to be returned to society at large. The calculations of the table are supported by data on each of the following factors: a. Portion of population sought to cut off. b. Differential birth rate. c. Growth of institutions. d. Sex and age of persons committed to institutions. e. Average period of commitment. f. Control of immigration. g. Probable number of operations required.

11. **Charles B. Davenport and A. J. Rosanoff,** REPLY TO THE CRITICISM OF RECENT AMERICAN WORK by Dr. Heron of the Galton Laboratory. Feb. 1914, 43 pp. ..... $ .10

OUT-OF-PRINT

This is a defense of American eugenical work. The first paper considers the following: a. The personal element involved in the strictures. b. The strictures upon method and conclusion. Here are considered the absence of bias in collecting data, the extraordinary methods used by our critic in supporting his claim of the unreliability of our work. The lack of justification in the assertion that our conclusions are unjustified—because our conclusions have been so often confirmed—and the consideration of our changes of opinion. c. The significance of the attacks of the non-biological statistician is alluded to. A letter from Dr. David H. Weeks and a paper by Dr. A. J. Rosanoff, entitled "Mendelism and Neuropathic Heredity," dealing with the same "manifestly unfair and incompetent criticism," complete the Bulletin.

B. MEMOIRS.

This series, in quarto form, gives the results of original researches made by field workers and others upon some strain or trait.

1. **Florence H. Danielson** and **Charles B. Davenport,** THE HILL FOLK. REPORT ON A RURAL COMMUNITY OF HEREDITARY DEFECTIVES. August, 1912. With 3 folded charts and four text figures, 56 pp., quarto $ .75

This work comprises the following chapters: I. Introduction. II. Explanation of Charts. III. General Survey of Strains Studied and Their Traits. IV. Inheritance. V. Marriage Selection. VI. Financial Burden Entailed by Criminals and Dependents; (a) Pauperism and Crime, (b) Comparison with the Jukes. VII. Survey of Present School Children. VIII. Heredity and Environment. IX. Appendix.

2. Arthur H. Estabrook and Charles B. Davenport, THE NAM FAMILY. A STUDY IN COCOGENICS. Sept., 1912. With four charts and four text figures. 85 pp., quarto..... $ 1.00

This work comprises the following chapters: 1. Introduction. 2. Early History of the Nam Family. 3. First and Second Generations. 4-11. Particular Lines. 12. The Nars and Their Union with the Naps. 13. Line G (continued). 14. Line H. 15. The Nats (Line I). 16. Summary of Characteristics. 17. The Population Considered. 18. Social Statistics. 19. The Inheritableness of Nonsocial Traits: (a) Indolence, (b) Alcoholism, (c) Licentiousness, (d) Shyness. 20. Consanguinity in Marriage. 21. Fecundity. 22. Causes of Death. 23. Relative Effect of Changing the Environment and Changing the Blood; (a) Double Marriages, (b) Effect of "Adoption out" and of Life in the Orphan Asylum, (c) Consequences of Removal to a New Locality. 24. Social Prophylaxis.

C. REPORTS.

Report No. I. HARRY H. LAUGHLIN, Superintendent. 28 pp., 1 map, 1 folded chart, 10 cuts.

This publication gives a description and statistical report of the work of the Eugenics Record Office during the first twenty-seven months of its existence (October 1, 1910, to January 1, 1913).

The publications of the Eugenics Record Office are placed in certain designated depositories of learning and, for the rest, sold to the public at a price that is intended to cover part of the cost of manufacture. They are for sale at the prices named, and will be mailed, postage prepaid, upon receipt of price. Address: Cold Spring Harbor, Long Island, N. Y.

D. BOOKS BY CHARLES B. DAVENPORT, based upon work of the Eugenics Record Office, but published elsewhere.

1. HEREDITY IN RELATION TO EUGENICS. 175 illustrations and diagrams, with 2 plates and bibliography and index, 8 vo., 298 pp., $2.00 net; by mail, $2.15. Published 1911 by Henry Holt & Company, 34 W. 33rd Street, New York.

CONTENTS.

Chapter I.—Eugenics: Its Nature, Importance and Aims.

What Eugenics is.—The Need of Eugenics.—The General Procedure in Applied Eugenics.

Chapter II.—The Method of Eugenics.

Unit Characters and Their Combinations.—The Mechanism of the Inheritance of Characteristics.—The Laws of Heredity.—Inheritance of Multiple Characters.—Heredity of Sex and "Sex-limited" Characters.—The Application of the Laws of Heredity to Eugenics.

Chapter III.—The Inheritance of Family Traits.

Eye Color.—Hair Color.—Hair Form.—Skin Color.—Stature.—Total Body Weight.—Musical Ability.—Ability in Artistic Composition.—Ability in Literary Composition.—Mechanical Skill.—Calculating Ability.—Memory.—Combined Talents and Summary of Special Abilities.—Temperament.—Handwriting.—General Bodily Energy.—General Bodily Strength.—General Mental Ability.—Epilepsy.—Insanity.—Pauperism.—Narcotism.—Criminality.—Other Nervous Diseases.—Rheumatism.—Speech-Defects.—Defects of the Eye.—Ear Defects.—Skin Diseases.—Epidermal Organs.—Cancer and Tumors.—Diseases of the Muscular System.—Diseases of the Blood.—Diseases of the Thyroid Gland.—Diseases of the Vascular System.—Diseases of the Respiratory System.—Diseases of the Alimentary System.—Diseases of the Excretion—.Reproductive Organs.—Skeleton and Appendages.—Twins.

Chapter IV.—The Geographic Distribution of Inheritable Traits.

The Dispersion of Traits.—Consanguinity in Marriage.—Barriers to Marriage Selection: a. physiographic barriers, b. social barriers.

Chapter V.—Migrations and Their Eugenic Significance.

Primitive Migrations.—Early Immigration to America.—Recent Immigration to America.—Control of Immigration.

Chapter VI.—The Influence of The Individual on the Race.

Elizabeth Tuttle.—The First Families of Virginia.—The Kentucky Aristocracy.—The Jukes.—The Ishmaelites.—The Banker Family.

Chapter VII.—The Study of American Families.

The Study of Genealogy.—Family Traits.—The Integrity of Family Traits.

Chapter VIII.—Eugenics and Euthenics.

Heredity and Environment.—Eugenics and Uplift.—The Elimination of Undesirable Traits.—The Salvation of the Race Through Heredity.—The Sociological Aspect of Eugenics.—Freedom of the Will and Responsibility.

Chapter IX.—The Organization of Applied Eugenics.

State Eugenic Surveys.—A Clearing House for Heredity Data.

2. HEREDITY OF SKIN COLOR IN NEGRO-WHITE CROSSES. (Publication No. 188 of the Carnegie Institution of Washington; Paper No. 20 of the Station for Experimental Evolution at Cold Spring Harbor, New York). 106 pedigrees, 34 tables, 4 plates, 8 vo. boards, 106 pp..... $ 2.00

Published 1913, by the Carnegie Institution of Washington, D. C.

CONTENTS.

A. Statement of the problem. B. Method of investigation. C. Evaluation of data. D. Ontogenetic development of the skin of the negro. E. Results:

I. The skin color of Caucasians in Bermuda and Jamaica.

II. Quantitative determination of the skin color of pure-bred negroes.

III. Skin color of the children of a negro and a Caucasian (the F-1 generation).

IV. Skin color of the children of two mulattoes (the F-2 generation).

V. Hypothesis.

VI. Test of the hypothesis.

VII. Is there a sex-linkage or sex-dimorphism in skin color?

VIII. Do the children "take after" the mother and father equally?

IX. Selection of mates—"grading up" to white.

X. The agreement of the hypothesis with popular observation and nomenclature.

XI. The yellow element in the skin color.

XII. The "fixed white," the "pass for white," and the "white by law."

XIII. Reversion to black skin color.

F. Discussion of inheritance of traits associated with skin color: I. Eye color. II. Hair color. III. Hair form.

G. Correlation of characteristics in hybrids:

I. Correlation between the color of the skin and of the hair in the F-2 generation.

II. Correlation between the color of the skin and the form of the hair in the F-2 generation.

H. Fecundity of hybrids. I. Summary of conclusions. K. Literature cited.

Appendix A.

I. Bermudian families. II. Jamacian families. III. Louisianian families.

Appendix B. Social data concerning miscegenation.

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Eugenics Record Office

BULLETIN No. 4

A FIRST STUDY OF INHERITANCE IN EPILEPSY

BY

C. B. DAVENPORT

CARNEGIE INSTITUTION OF WASHINGTON

AND

DAVID F. WEEKS, M.D.

THE NEW JERSEY STATE VILLAGE FOR EPILEPTICS AT SKILLMAN

Reprinted from

JOURNAL OF NERVOUS AND MENTAL DISEASE

Vol. 38, No. 11, pp. 641–670, 1911

Cold Spring Harbor, N. Y.

November, 1911

A FIRST STUDY OF INHERITANCE OF EPILEPSY

By Charles B. Davenport and David F. Weeks, M.D.,

1. Statement of the Problem

Epilepsy is employed in this paper in a wide sense to include not only cases of well-marked convulsions, but also cases in which there has been only momentary loss of consciousness. Other, physically less marked cases of epilepsy and various epileptiform and border-line cases have undoubtedly been frequently overlooked in the necessarily somewhat hurried investigations into the pedigrees of patients. Given epilepsy as thus defined our problem is: what laws, if any, are followed in its occurrence in successive generations? How often does it arise *de novo* in a strain showing elsewhere no mental weakness? What relation does it bear to alcoholism, to paralysis, to migraine and to other symptoms of lack of neural strength? The answer to these questions can be reached only by a study of the pedigrees of families containing epileptics in which the psychic history of numerous members is precisely known.

2. The Material and the Method of Collecting It

This study is based on a lot of pedigrees of inmates of the New Jersey State Village for Epileptics at Skillman, N. J. The method by which they were obtained is important, for we are convinced that any advance we have been able to make in the difficult subject of inheritance of epilepsy is largely

due to it. These pedigrees were collected in major part by Mrs. D. Leucile Field Woodward, of the Skillman Village, and in minor part by Miss Saidee C. Devitt, of the Eugenics Record Office, while assigned to that village. These women visited the homes of patients, interviewed parents and other relatives, and physicians for the purpose of securing an accurate account of the mental history, environmental conditions, diseases and causes of death, if dead, of as many relatives as possible of the patient. The pedigree data thus obtained have proved to be much more significant and trustworthy than the familiar "family histories" commonly obtained from the patient or his guardian at the time of admission. Our data, we are convinced, approximate closely enough to the truth to warrant careful study, which is more than can be said for the ordinary "family history."

The number of separate pedigrees used in the present study has been 177. Two of these pedigrees were found to be connected with pedigrees that had been acquired earlier, so that there are only 175 separate families involved, and there is little doubt that further study will show some of these to be of the same blood. The number 175 gives no idea of the number of epileptics recorded in the pedigrees, since as many as 4 have been described in a single fraternity (full brothers and sisters), and several fraternities with epileptic individuals have been described in the same pedigree. In the tables that accompany this paper a single pedigree chart has sometimes yielded more than a single entry; on the other hand the data from 23 pedigree charts were altogether excluded because the mental condition of one or both parents of the principal fraternity was not ascertained by the field worker. The number of fraternities eventually considered in the following tables (each presumably descended from a single pair of parents) is 181. The total number of epileptics in the fraternities analysed is 206, but there were many other epileptics recorded in the charts who could not be used for study because of the fragmentary knowledge of their parentages and their sibs (i. e., brothers and sisters).

3. The Method of Analyzing the Data

This differs from that commonly employed hitherto in studies on the inheritance of human defects and diseases. Until recently it has been considered sufficient to determine in what proportion

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of cases an epileptic was known to have epileptic ancestors ("direct heredity") or other relatives ("collateral heredity"). This proportion was then taken as the index of heredity. The index naturally increased as the study of the family was extended and so it is not surprising to find that the indices of heredity of epilepsy, determined by different workers, varies from 21 per cent. or lower to 75 per cent.

In this paper our data have been analyzed by the method commonly employed by biologists and known as the Mendelian method. This method assumes that the inheritance of any character is not from the parents, grandparents, etc., but from the germ-plasm out of which every fraternity and its parents and other relatives have arisen. The bodies of persons as we know them serve as (imperfect) indices of the nature of the germ-plasm from which they spring. The relation of soma and germ-plasm is as follows:

1. If the soma lacks a unit character upon which normal development depends that is *prima facie* evidence that the representative of that character is absent from its germ-plasm; consequently such a person cannot transmit the character in question.

2. If the soma has the unit character for normal development that is evidence that the germ plasm has the corresponding determiner. But either one of two cases is possible, (*a*) the determiner was derived from both sides of the house, so that it is double in the germ plasm (duplex, designated below by 2) and all the germ cells have the character; or else, (*b*) it came from one side of the house only, in which case it is single in the germ plasm (simplex, designated below by 1) and half of the germ cells have and half lack the character. The condition in the case when the determiner is absent may be called nulliplex (designated below by 0).

A moment's consideration will show that six kinds of matings, disregarding sex, are possible. These matings, together with the sort of offspring that they may be expected to yield, are indicated in the following table:

NORMAL

I, 0 × 0. All without the character of full mental development.
II, 0 × 1. 50 per cent. devoid of the character; 50 per cent. simplex.
III, 0 × 2. All with the character, simplex.
IV, 1 × 1. 25 per cent. with the character absent, 50 per cent. with it simplex; 25 per cent. with it duplex.
V, 1 × 2. 50 per cent. with character simplex; 50 per cent. with it duplex.
VI, 2 × 2. All with character duplex—mentally strong.

Practically, it is not always easy to distinguish the simplex from the duplex conditions, although frequently the simplex condition is indicated by an *intermediate* ~~mental~~ status. We may, however, construct six main tables, subsequently dividing the second into two parts, according as closely as possible with the probabilities in respect to germinal composition of the parents.

4. RESULTS.

In Table I there is only one mating with both parents epileptic (Fig. 1). There were three children of this mating about whose

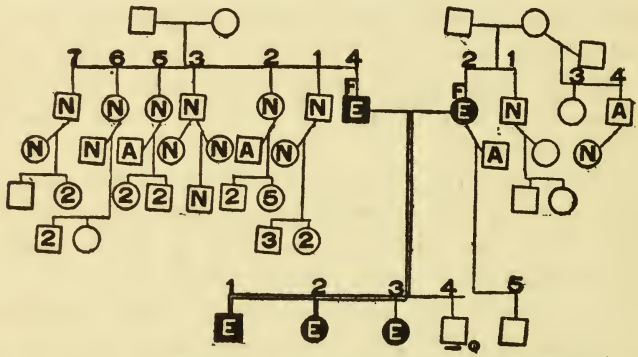

FIG. 1. Chart showing, at the bottom, the offspring of two epileptic parents. In this case both parents are likewise feeble-minded. Of the four children three are epileptic and No. 4 who died before he was fourteen was feeble-minded. Case 3669.

condition something is known; all were epileptic. There were five matings (see Figs. 4, 5, 6, 7) in which one parent was epileptic and the other feeble-minded; of the 14 offspring therefrom, 8 were epileptic and 6 feeble-minded. There were 6 matings of 2 feeble-minded parents (Figs. 8, 9, 29); and they yielded 21 known offspring. Of these 16 were feeble-minded and 5 were epileptic. It appears, consequently, that when both parents are epileptic, both feeble-minded, or one epileptic and the other feeble-minded all of the offspring will be either epileptic or feeble-minded, and the proportion of epileptics in any fraternity increases with that in the parentage. The rule that two feeble-minded parents have only offspring like themselves was apparently first noted by one of us in 1909. The extensive and valuable data of Goddard (1910) offer several matings that accord with this rule. Through the kindness of Dr. Goddard we have

THE FRE MENTAL CONDITION OF THE GRANDPARENTS, THE PARENTS' SIBS
OWN.

Abbreviati cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, delirium r; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, ner's father; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, imple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis; tf, typhoid fe

Ser. No.		f	mm	m's sibs.						Other m's relatives.					
	Total.			Total.	† early.	X	N	Ne	np	Total.	† early.	X	N	Ne	np
3669	4	-	—	1	.....	...	1	...	...	7	.....	6	...	1[1]	...
1286	8	-	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1745b	4	-	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
2105	1		—	2	.....	...	1	1	...	1	.....	1	...	...	...
3031	7	-	FSx	.....	.....	...	...	...	...	1	1	...	...	...	...
3165	4	F	FSx	5	.....	2	...	...	3[8]	.....	.....	...	...	...	...
4172	3		—	4	2	...	1	1	...	90	8	65	5	8[11]	4[12]
584	1	-	—	10	9	...	1	...	...	10	.....	8	2	...	...
2847	7	-	—	2	.....	2	...	...	...	2	.....	2	...	...	...
2857	3		?N	5	1	1	...	2[17]	1	12	6	2		4[18]	...
3052	6		—	4	1	...	1	2	...	12	.....	5	2	2[21]	3[22]
469	9	-	—	1	.....	...	...	...	1[26]	.....	.....	...	...	...	...
1872	6	-	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
4062b	2	-	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...

[1]A. [2]Cho [15]3A, 1 also W. [16]E. [17]1A, Sx, W, and 1 prob. defec. [18]all A, one also C. [19]F.

TABLE I.

THE FREQUENCY OF THE DIFFERENT CLASSES OF MENTAL CONDITION IN THE CHILDREN OF TWO MENTALLY DEFECTIVE PARENTS; TOGETHER WITH THE MENTAL CONDITION OF THE GRANDPARENTS, THE PARENTS' SIBS (BROTHERS AND SISTERS) AND OTHER BLOOD RELATIVES ABOUT WHOM SOMETHING IS KNOWN.

Abbreviations.—A, alcoholic; ap, apoplexy; B, blind; bd, affected with Bright's disease; C, criminalistic; ca, cancerous; cb, childbirth; ch, choreic; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, delirium tremens; dw, dwarf; dy, dropsical; E, epileptic; ec, eccentric; en, encephalitis; F, feebleminded; f, father; ff, father's father; fm, father's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, insane; id, ill defined organic disease; kd, kidney disease; la, locomotor ataxia; M, migrainous; m, mother; md, manic depressive insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, obesity; P, paralytic; pa, paranoiac; pn, pneumonia; S, syphilitic; sb, softening of the brain; sc, scoliosis; sd, senile dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis; tf, typhoid fever; tu, tumor; va, varicose veins; ve, vertigo; W, vagrant; x, unknown; ? implies doubt; † died.

Ser. No.	Children.												f	ff	fm	f's sibs.						Other f's relatives.						m	mf	mm	m's sibs.						Other m's relatives.					
	Total.	† early.	X	N	E	F	I	M	Ne	A	P	Sx				Total.	† early.	X	N	Ne	np	Total.	† early.	X	N	Ne	np				Total.	† early.	X	N	Ne	np	Total.	† early.	X	N	Ne	np
3669	4	.....	1	...	3	...	...	...	...	...	...	...	EF	dy	dy	6	.....	...	6	...	...	23	.....	21	1	1	...	EF	—	—	1	.....	...	1	...	...	7	.....	6	...	1[1]	...
1286	8	.....	5	...	1	2	...	...	...	...	...	...	FA	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...	F	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1745b	4	.....	...	...	...	4	...	...	...	...	...	...	F	†T	E	7	4	...	2	1[2]	...	.....	.....	...	...	...	...	F	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
2105	1	.....	...	...	1	...	...	...	...	...	...	...	F	—	†dy	.....	.....	...	...	...	...	11	3	5	2	...	1[3]	F	A	—	2	.....	...	1	1	...	1	.....	1	...	...	...
3031	7	.....	...	...	1	6	...	...	...	...	...	...	F[4]A	N	N	6	2	...	2	2	...	.....	.....	...	...	...	...	FSx	—	FSx	.....	.....	...	...	...	...	1	1	...	...	...	...
3165	4	1[5]	...	...	1[6]	2[7]	...	...	...	...	...	...	AFC	AC	—	5	.....	2	...	...	3[7]	.....	.....	8	...	3[8]	...	E	ACF	FSx	5	.....	2	...	...	3[8]	.....	.....	...	...	...	...
4172	3	.....	...	...	1	2	...	...	...	...	...	...	F	†T	—	2	.....	1	...	1[9]	...	.....	.....	3	...	...	1[10]	F	A	—	4	2	...	1	1	...	90	8	65	5	8[11]	4[12]
584	1	.....	...	...	1	...	...	...	...	...	...	...	F	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...	E	—	—	10	9	...	1	...	...	10	.....	8	2	...	...
2847	7	3	...	...	3	1	...	...	...	...	...	...	F	—	—	3	.....	2	...	1[13]	...	3	.....	3	...	...	...	E	—	—	2	.....	2	...	...	...	2	.....	2	...	...	...
2857	3	1[14]	...	...	1	1	...	...	...	...	...	...	F	FC	?N	5	.....	1	...	3[15]	1[16]	4	2	2	...	...	...	ESx	A	?N	5	1	1	...	2[17]	1	12	6	2		4[18]	...
3052	6	1	1	...	2	2	...	...	...	...	...	...	F	—	—	6	5	...	...	...	1[19]	.....	.....	38	...	1[20]	...	E	†P	—	4	1	...	1	2	...	12	.....	5	2	2[21]	3[22]
469	9	2	...	4	1	2[23]	...	...	...	...	...	1[24]	AI	—	—	5	3	...	1	...	1[25]	23	.....	18	5	...	...	E	—	—	1	.....	...	...	...	1[26]	.....	.....	...	...	...	...
1872	6	.....	...	3	...	2	...	1	...	...	...	...	I[27]	†P	†P	11	7	...	3	...	1[28]	9	.....	9	...	...	...	FSx	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
4062b	2	.....	...	2	...	...	...	...	...	...	...	...	F	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...	E[29]	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...

[1]A. [2]Chorea. [3]F. [4]"not bright." [5]anencephalic monster. [6]also F. [7]1 also ESx. [8]2A, 1Sx, 1E, 2F. [9]alcoholic. [10]F. [11]1A, 2P. [12]1E, 1F, 2I. [13]Sx. [14]sb. [15]3A, 1 also W. [16]E. [17]1A, Sx, W, and 1 prob. defec. [18]all A, one also C. [19]F. [20]ch. [21]A. [22]E. [23]also 1I and 1C. [24]also C. [25]I. [26]E. [27]traumatic(?). [28]E. [29]Sister of m in 406a.

examined all of his data at Vineland. Thirty-five F × F matings yielded 142 known offspring—all feeble-minded.

Two important conclusions follow from these facts: First,

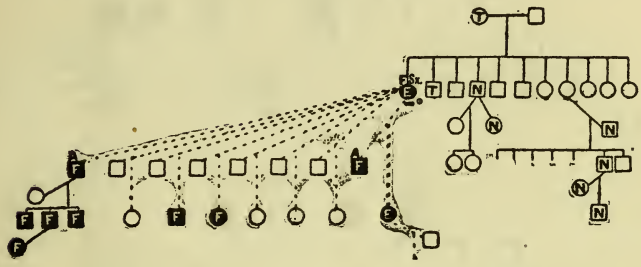

FIG. 2. This chart illustrates the *poorhouse source of defectives.* The central figure is an epileptic, feeble-minded, unchaste woman who had seven children, concerning six of whom something is known. Three of these died in infancy; the remainder are defective. The mother was taken from the almshouse, where she had spent a good share of her life, to keep house for a feeble-minded man and his three feeble-minded sons. One of this man's sons married a feeble-minded sister of one of the patients at the State Village. As a commentary on the condition of an almshouse this chart is eloquent. Case 584.

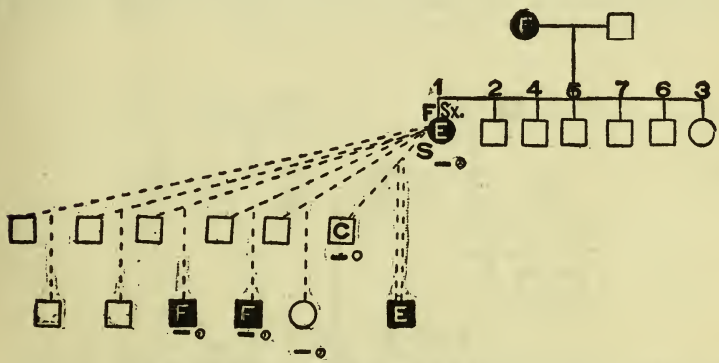

FIG. 3. This chart illustrates again the *poorhouse source of defectives.* The central figure is a feeble-minded woman, subject to epileptic fits, descended from a feeble-minded mother and shiftless, worthless father. She has spent most of her life in the almshouse and all of her children have been inmates. One is by a negro whom she met in the almshouse. Two of the children died in infancy; one, of whom little is known, died at 18. Of the remainder, two are feeble-minded and one, from a sire with criminal tendencies, is an epileptic imbecile. Case 829.

imbecility and epilepsy depend on the absence of factors that are very closely akin. At least, two feeble-minded parents may produce a large proportion of epileptic children. Second, when the soma of the parents shows bottom conditions their germ-plasm

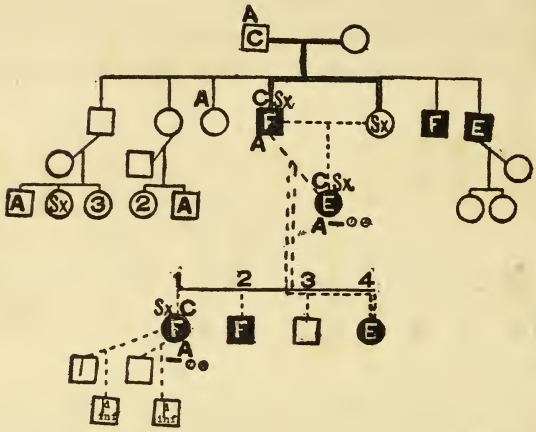

FIG. 4. This chart illustrates the *hovel source of defectives.* A feeble-minded man had by his defective sister an epileptic daughter with criminal instincts; then by this daughter he had four children, two feeble-minded, one epileptic and the fourth an anencephalic monster who died directly after birth. The empty germ plasm yields only emptiness. These things were done in a little hut in the woods until it burned down and now mother and eldest daughter, when not in the county jail or the Monmouth County almshouse, live in a cellar in town. The man is dead; but some of his protoplasm is living and at large. Case 3165.

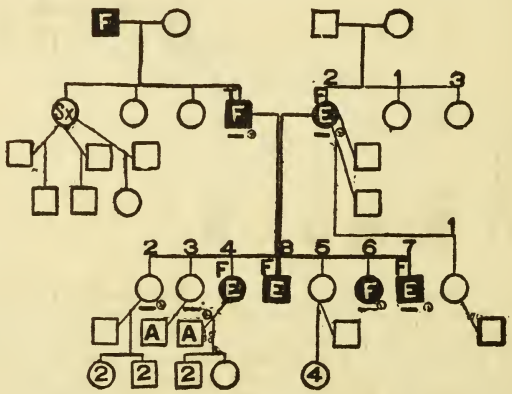

FIG. 5. In this chart the central mating is of two feeble-minded persons. The father had, in turn, a feeble-minded father. He himself is a drug fiend and, like his wife, has lived in an almshouse (2). His sister was a lewd woman and had three illegitimate children. There are seven offspring born between 1872 and 1892. Nothing is known of number 5 except that she has four children. Nos. 2 and 3 were at the almshouse; the other four are also feeble-minded, and three of them epileptic in addition. The two youngest are in a "children's home." There are eleven children coming on in the rising generation. Case 2847.

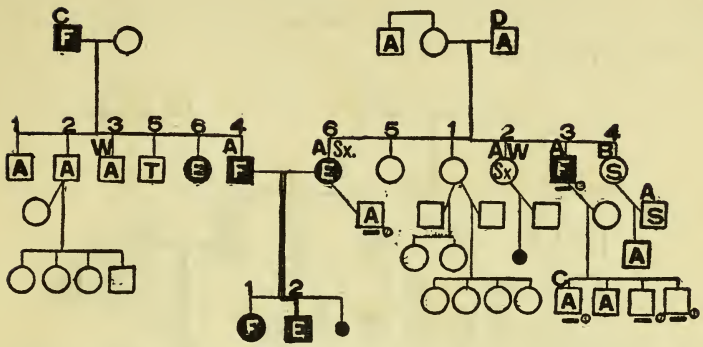

FIG. 6. This chart shows the product of a feeble-minded man and an epileptic, opium-eating, unchaste woman. The father's father was feeble-minded and a "criminal" and, besides the man in question, he had an epileptic son, and three alcoholics, of whom one had the vagrant tendency (W). The mother's germ-plasm does not show up much better, for she has a feeble-minded and alcoholic brother, who lives at the almshouse, an alcoholic sister who is a prostitute and a vagrant, and three alcoholic nephews of whom one (C) has been in jail (4). Two children were born alive to this pair 35 odd years ago. The first was feeble-minded and died before she was fourteen, the second is at the State Village for Epileptics. Case 2857.

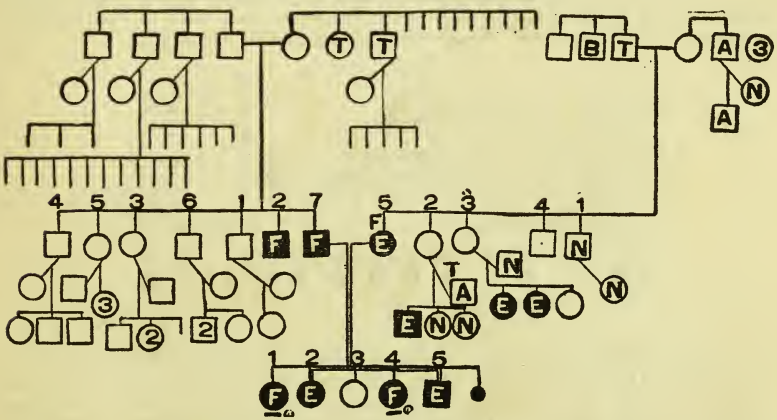

FIG. 7. The central mating is that of a feeble-minded man (who has a feeble-minded brother) and a feeble-minded and epileptic woman (who has three epileptic nephews and nieces, and belongs to a fraternity of neuropaths). Five children were born alive, of whom two are in an institution for the feeble-minded, two at the Skillman Village for Epileptics and the other, a nine-year old, has defective speech. The feeble-minded children are approaching an age when, upon demand of the father, they may be set free on the community to continue the pedigree. Case 3052.

lies at the lowest stage and can not produce mentally strong children,—the children can not rise higher than the higher parent in this character.

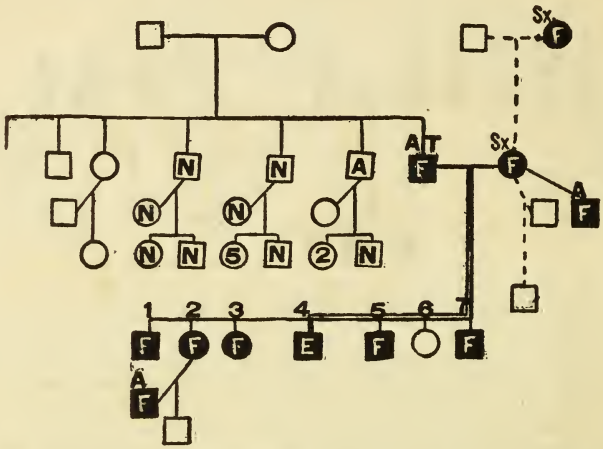

FIG. 8. This chart illustrates again the product of two feeble-minded parents. The father belongs to a fair strain except that his brother also is alcoholic. The mother, like *her* mother in turn, is immoral. There are seven children, of whom six are known. One of these is an epileptic at State Village and all of the others are feeble-minded. After the father's death the mother had an illegitimate child who died in infancy and she is now married to a feeble-minded and alcoholic man who is the younger brother of her daughter's feeble-minded husband. Case 3031.

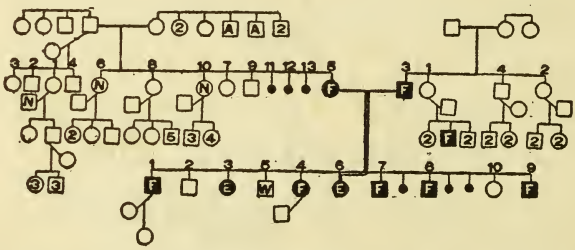

FIG. 9. Both parents are feeble-minded. Of their children ten were born alive. One is only three years old; one died at five years. All of the other eight are defective—two epileptic and six feeble-minded, including one confirmed runaway. This is a family of paupers living on the outskirts of the town in a barn to save rent. Case 3384.

In sharp contrast to the foregoing is the result of mating of one feeble-minded or epileptic parent with one who is "insane." Our collection shows 3 such matings. In one (Fig. 10) the insanity of the father (A) is probable. The father "is an intemper-

ate man and a baker by trade," always quarreling with his wife—"used to beat the mother and she always went about with a face very much bruised." This mating yields 1 normal to 3 defective in addition to others that are not known. In the second case the

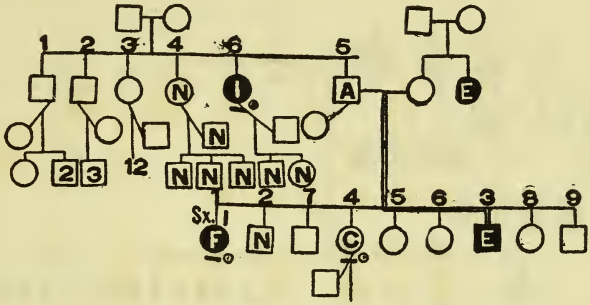

FIG. 10. The picture presented by this pedigree is quite different from the foregoing. The mother shows signs of epilepsy and has a certainly epileptic sister. The father belongs to a strain that shows insanity. His brother is in the state hospital and he himself is always quarrelsome and at times violent. "The whole family was a disturbing element in the town where they lived. The girls were immoral and the boys, who were implicated in a couple of local robberies, could never be trusted; so the people in the neighborhood were greatly relieved when they moved away." One boy is now at the State Village for Epileptics. His sister, No. 4, was at the state Home for girls and No. 1 is in an insane asylum. This whole fraternity seems to be unstable, neuropathic. Case 469.

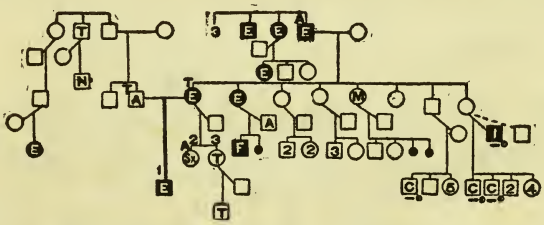

FIG. 11. This is a pedigree chart of a negro family whose maintenance is costing the State of New Jersey no small sum. The central mating shows an alcoholic man (who has an epileptic grand niece) married to an epileptic woman. Her father, and two of his sibs were epileptic. The woman has an epileptic sister and an epileptic cousin. She has one nephew in the state prison at Trenton, a brother-in-law in the state hospital there, two nephews in a state reform school and a daughter at the State Village. By another man she has a drinking immoral daughter and had another daughter who died of tuberculosis, leaving a son who at 17 has tuberculosis. Several of these feeble-minded and epileptic are still at large. Case 1643.

insanity (of the father) is said to be due to a fall after his marriage. This defect may be purely traumatic but, on the other hand, he has an epileptic brother and a feeble-minded niece, so

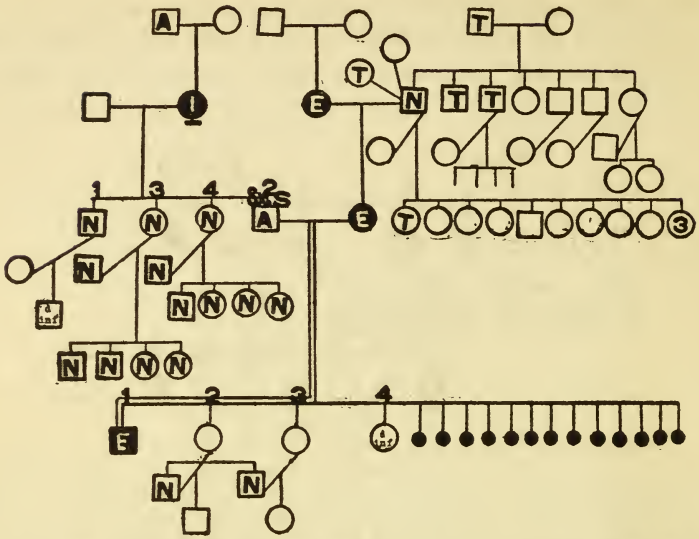

FIG. 12. This chart gives a picture of the combined effect of bad protoplasm and venereal infection. The central mating is between an epileptic woman (descended from an epileptic mother) and a sot, whose mother was insane and who is himself sexually immoral and infected both with gonorrhea and syphilis. The first child is epileptic, the next two are neurotic, No. 3 has hysteria, and No. 4 died in infancy. Then followed thirteen miscarriages, clearly due to the infection. In contrast with this result is that of two normal sisters of the father who married normal men and had, altogether, eight children, all normal. Case 1772.

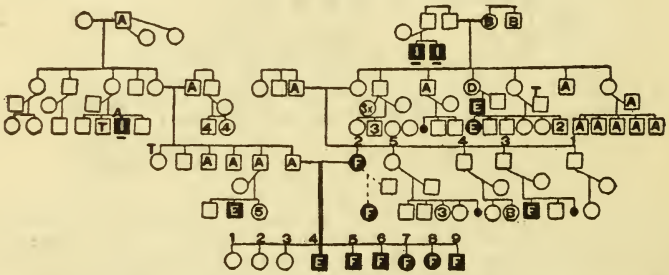

FIG. 13. In the central mating the mother is a feeble-minded woman who comes from a stock that is characterized by a high incidence of epilepsy, insanity and alcoholism. She had an illegitimate daughter who is feeble-minded, and then she married a man who is alcoholic himself, comes from a strain with many alcoholists, and has an insane cousin and an epileptic nephew. It seems probable that the father is mentally subnormal, and of the six children (out of nine) who did not die young one has epilepsy and the other five are feeble-minded. Case 2564.

there was probably an innate weakness and the fall is invoked as a convenient "cause." The 3 matings together yielded 19 off-

THE FREQUE[illegible]THER ALCOHOLIC; TOGETHER WITH THE MENTAL CONDITION OF [illegible] KNOWN.

Abbreviati[illegible] cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, [illegible]er's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; [illegible] insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; [illegible] dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, u[illegible]

Ser. No.	Total.	m's sibs.						Other m's relatives.					
		Total.	†early.	X	N	Ne	np	Total.	†early.	X	N	Ne	np
624	11	5	.....	2	1	2^{1}	...	5	.....	5	...	...	...
1274	4	3	.....	...	2	1	...	9	1	8	...	...	...
1319	2	.....	.....	...	...	...	...	22	1	20	...	1	...
2564	9	4	.....	4	...	...	...	67	14	30^{9}	4	12^{10}	7^{11}
3189a	8	3	.....	1	...	2^{12}	...	15	.....	14	...	...	1^{13}
3429	11	8	1	4	...	3^{16}	...	15	2	13	...	...	...
3384	13	8	5	1	2	...	...	36	2	32^{21}	...	2^{22}	...
4403b	3	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1643	1	7	1	...	4	1	1^{23}	39	3	30^{24}	2	...	4^{25}
1662	5	7	6	1	...	...	...	1	.....	...	...	...	1^{26}
1772	17	—	.....	...	...	...	...	22	9	13^{27}	...	...	...
1976	8	6	1	3	2	...	...	21	.....	17	1	2	1^{31}
2487b	2	11	2	...	3	5	1^{32}	29	.....	16	5	3	5^{33}
2601	3	8	.....	6	...	2^{35}	...	21	.....	20	...	...	1^{36}
2769	12	6	.....	...	...	...	...	19	.....	19	...	...	...
3104	3	.....	.....	...	...	...	...	.....	.....	...	...	...	...
3805	7	3	.....	1	1	1^{40}	...	11	.....	10	...	1^{41}	...
4062	3	8	2	...	1	3^{43}	2^{44}	34	8	14	7	1	4^{45}
4676	5	10	.....	10	...	...	...	—	.....	...	...	...	...
2487c	4	.....	.....	...	...	...	...	.....	.....	...	...	...	...
3515	3	4	.....	3	...	...	1^{48}	1	.....	...	...	...	1^{49}

[1]1A, 1Ne. [illegible]N, 13 yrs. old. [18]stubborn, to 4th grade in school. [19]1†dy. [20]F. [21]1†ca. [22]†P. [illegible] [40]A. [41]su. [42]E. [43]1A, C. [44]1E, 1I. [45]3E, 1I. [46]also Ne. [47]E. [48]I. [49]F.

THE [illegible]ND THE OTHER HAS APPARENT *Neurosis*; TOGETHER WITH [illegible]M SOMETHING IS KNOWN.

Abbre[illegible]; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia[illegible]her; fm, father's mother; go, gôitre; gp, general paralysis of the ins[illegible]r; md, manic depressive insanity; mf, mother's father; mm, mother's [illegible] the brain; sco, scoliosis; sd, senile dementia; sh, shiftless; sm, simpl[illegible] x, unknown; ? implies doubt; † died.

Ser. No.	m's sibs.						Other m's relatives.					
	Total.	†early.	X	N	Ne	np	Total.	†early.	X	N	Ne	np
4103	4	1	3	...	...	...	7	.....	7	...	...	...
3906	6	.....	6	...	...	...	2	.....	2^{5}	...	...	...
4078	8	.....	3^{7}	2	2	1^{9}	34	.....	14	6	9^{10}	5^{11}
835	14	13	1	...	...	...	5	.....	4^{16}	...	1	...
1174	3	.....	...	1^{17}	1^{18}	1^{19}	14	.....	6	4	1	3^{20}
2015, 4369 } b	4	2	...	...	2	...	43	2	28	3	1	9^{23}
473	1	.....	...	1	...	...	2	.....	...	2	...	...
3402	3	.....	...	2	1^{29}	...	19	7	10	2	...	..
4326	7	4	...	1	...	2^{30}	.....	2	...	12	2	3^{31}
504, 3781 } a	2	2	...	...	...	...	.....	.....	...	...	...	...
1365	.....	.....	...	...	...	...	.....	.....	...	...	...	...
2070	2	....	2	...	...	...	.....	.....	...	...	...	...

[1]A. [2]s[illegible]P. [19]E. [20]1E, 2I. [21]E. [22]F. [23]6E, 3F. [24]†obstruct. of intestine = ca?

TABLE II.

THE FREQUENCY OF THE DIFFERENT CLASSES OF MENTAL CONDITION IN THE CHILDREN OF PARENTS ONE OF WHOM IS MENTALLY DEFECTIVE AND THE OTHER ALCOHOLIC; TOGETHER WITH THE MENTAL CONDITION OF THE GRANDPARENTS, THE PARENTS' SIBS AND OTHER BLOOD RELATIONS ABOUT WHOM SOMETHING IS KNOWN.

Abbreviations.—A, alcoholic; ap, apoplexy; B, blind; bd, affected with Bright's disease; C, criminalistic; ca, cancerous; cb, childbirth; ch, choreic; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, delirium tremens; dw, dwarf; dy, dropsical; E, epileptic; ec, eccentric; en, encephalitis; F, feebleminded; f, father; ff, father's father; fm, father's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, insane; id, ill defined organic disease; kd, kidney disease; la, locomotor ataxia; M, migrainous; m, mother; md, manic depressive insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, obesity; P, paralytic; pa, paranoiac; pn, pneumonia; S, syphilitic; sb, softening of the brain; sco, scoliosis; sd, senile dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis; tf, typhoid fever; tu, tumor; va, varicose veins; ve, vertigo; W, vagrant; x, unknown; ? implies doubt; † died.

Ser. No.	Children.										f	ff	fm	f's sibs.						Other f's relatives.						m	mf	mm	m's sibs.						Other m's relatives.					
	Total.	†early.	X	N	E	F	I	Ne	A	sx				Total.	†early.	X	N	Ne	np	Total.	†early.	X	N	Ne	np					Total.	†early.	X	N	Ne	np	Total.	†early.	X	N	Ne	np
624	11	4	...	3	2	2	...	...	...	...	A	?	?	...	...	...	...	...	...	...	...	...	...	...	...	F	?	?	5	...	2	1	2^{1}	...	5	...	5	...	...	...
1274	4	...	...	...	1	1	...	1^{7}	...	1	A	—	—	4	...	2	1	1	...	5	...	5	...	...	...	F	A	†ca	3	...	...	2	1	...	9	1	8	...	...	...
1319	2	...	...	...	1	1	...	...	...	...	A	—	1	6	...	...	5	1^{3}	...	18	2	13	...	2^{4}	1^{5}	F	—	F	...	...	...	...	...	...	22	1	20	...	1	...
2564	9	3	...	...	1	5	...	...	...	...	A	A	—	5	...	2	...	3^{6}	...	29	1	19	4	4^{7}	1^{8}	F	A	—	4	...	4	...	...	...	67	14	30^{9}	4	12^{10}	7^{11}
3189a	8	5	...	1	2	...	...	...	...	...	A	—	—	—	...	...	...	...	...	...	...	...	...	...	...	FA	—	—	3	...	1	...	2^{12}	...	15	...	14	...	...	1^{13}
3429	11	5	...	...	1	2	...	3	...	...	A	—	dy	5	1	...	2	2^{14}	...	26	...	24	...	1	1^{15}	F	—	dy	8	1	4	...	3^{16}	...	15	2	13	...	...	...
3384	13	6	...	1^{17}	2	3	...	1^{18}	...	...	A	—	†P	3	...	3^{19}	...	...	...	16	...	15	...	...	1^{20}	F	A	†dy	8	5	1	2	...	...	36	2	32^{21}	...	2^{22}	...
4403b	3	...	...	...	...	3	...	...	...	...	A	—	—	...	...	...	...	...	...	...	...	...	...	...	...	F	—	—	...	...	...	...	...	...	...	...	...	...	...	...
1643	1	...	...	...	1	...	...	...	...	...	A	—	—	1	1	...	...	...	...	5	...	...	4	...	1^{23}	E	E	†bd	7	1	...	4	1	1^{23}	39	3	30^{24}	2	...	4^{25}
1662	5	4	...	...	1	...	...	...	...	...	A	—	A†P	11	...	11	...	...	...	3	...	...	3	...	...	E	—	1	7	6	1	...	...	...	1	...	...	...	...	1^{26}
1772	17	14	...	...	1	...	...	2	...	...	ASx	—	1	3	...	...	3	...	...	11	1	1	8	1	...	E	N	E	—	...	...	...	...	...	22	9	13^{27}	...	...	...
1976	8	2	2	2	1	...	...	1	...	...	AD	—	—	—	...	...	...	...	...	10	...	3	4	2	1^{28}	E^{29}	I^{30}	†ca	6	1	3	2	...	...	21	...	17	1	2	1^{31}
2487b	2	...	...	...	2	...	...	...	...	...	A	—	—	...	...	...	...	...	...	...	...	...	...	...	...	E	P	M	11	2	...	3	5	1^{32}	29	...	16	5	3	5^{33}
2601	3	...	...	...	1	2	...	...	...	...	A	—	—	...	...	...	...	...	...	...	...	...	...	...	...	EF^{34}	—	†P	8	...	6	...	2^{35}	...	21	...	20	...	...	1^{36}
2769	12	2	3	3	3	...	...	...	1	...	A^{37}	—	—	6	...	3	2	1	...	13	...	10	...	2^{38}	1^{39}	E	—	—	6	...	...	...	...	...	19	...	19	...	...	...
3104	3	...	1	1	1	...	...	...	...	...	A	—	—	...	...	...	...	...	...	...	...	...	...	...	...	E	—	—	...	...	...	...	...	...	...	...	...	...	...	...
3805	7	5	...	...	1	1	...	...	...	...	A	†ap	—	4	1	2	...	1^{40}	...	8	1	5	2	...	...	EI	—	—	3	...	1	1	1^{40}	...	11	...	10	...	1^{41}	...
4062	3	...	2	...	1	...	...	...	...	...	A	—	—	3	...	...	3	...	...	4	...	3	...	...	1^{42}	E	I	—	8	2	...	1	3^{43}	2^{44}	34	8	14	7	1	4^{45}
4676	5	2	...	...	1	...	...	2	...	...	A^{46}	1	—	4	2	...	1	1	...	6	...	6	...	...	...	E	†bd	†ca	10	...	10	...	...	...	—	...	...	...	...	...
2487c	4	...	...	...	1	3	...	...	...	...	A	—	—	4	...	2	...	2	...	39	2	19	8	7	3^{47}	I	I	—	...	...	...	...	...	...	...	...	...	...	...	...
3515	3	...	1	...	1	...	...	1	...	...	A	—	—	...	...	...	...	...	...	...	...	...	...	...	...	I	I	I	4	...	3	...	...	1^{48}	1	...	...	...	...	1^{49}

[1]1A, 1Ne. [2]lies. [3]P. [4]A. [5]F. [6]A. [7]1A, 1†P. [8]E. [9]3B, 1D. [10]9A, 2Ne, 1 su. [11]4E, 1F, 2I. [12]A. [13]E. [14]1†P, 1Ne. [15]†at 3 mos, spasms. [16]1†en. [17]?N, 13 yrs. old. [18]stubborn, to 4th grade in school. [19]1†dy. [20]F. [21]1†ca. [22]†P. [23]E. [24]3C. [25]3E, 1F. [26]E. [27]1†ca. [28]F. [29]during pregnancy. [30]sd, †bd. [31]E. [32]I. [33]1E, 3F, 1I. [34]†ca. [35]A. [36]E. [37]†ca. [38]1A, 1sco. [39]F. [40]A. [41]su. [42]E. [43]1A, C. [44]1E, 1I. [45]3E, 1I. [46]also Ne. [47]E. [48]I. [49]F.

TABLE III.

THE FREQUENCY OF THE DIFFERENT CLASSES OF MENTAL CONDITION IN THE CHILDREN OF PARENTS ONE OF WHOM IS MENTALLY DEFECTIVE AND THE OTHER HAS APPARENT *Neurosis*; TOGETHER WITH THE MENTAL CONDITION OF THE GRANDPARENTS, THE PARENT'S SIBS, AND OTHER BLOOD RELATIVES ABOUT WHOM SOMETHING IS KNOWN.

Abbreviations.—A, alcoholic; ap, apoplexy; B, blind; bd, affected with Bright's disease; C, criminalistic; ca, cancerous; cb, childbirth; ch, choreic; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, delirium tremens; dw, dwarf; dy, dropsical; E, epileptic; ec, eccentric; en, encephalitis; F, feebleminded; f, father; ff, father's father; fm, father's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, insane; id, ill defined organic disease; kd, kidney disease; la, locomotor ataxia; M, migrainous; m, mother; md, manic depressive insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, obesity; P, paralytic; pa, paranoiac; pn, pneumonia; S, syphilitic; sb, softening of the brain; sco, scoliosis; sd, senile dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis; tf, typhoid fever; tu, tumor; va, varicose veins; ve, vertigo; W, vagrant; x, unknown; ? implies doubt; † died.

Ser. No.	Children.										f	ff	fm	f's sibs.						Other f's relatives.						m	mf	mm	m's sibs.						Other m's relatives.					
	Total.	†early.	X	N	E	F	I	Ne	A	Sx				Total.	†early.	X	N	Ne	np	Total.	†early.	X	N	Ne	np					Total.	†early.	X	N	Ne	np	Total.	†early.	X	N	Ne	np
4103	8	2	2	...	...	1	...	3	...	...	FA	—	—	6	...	3	...	2^{1}	1^{2}	15	—	10	...	5^{3}	...	M	—	E	4	1	3	...	...	...	7	...	7	...	...	...
3906	6	2	1	...	2	...	...	1	...	...	E	—	—	0	...	...	...	...	...	2	...	...	...	...	2^{4}	M	—	—	6	...	6	...	...	...	2	...	2^{5}	...	...	...
4078	4	...	...	2	1	...	...	1	...	...	E^{6}	A	A	2	...	2^{7}	...	...	...	31	3	20	2	6^{8}	...	ch	†P	†ca	8	...	3^{7}	2	2	1^{9}	34	...	14	6	9^{10}	5^{11}
835	8	...	5^{12}	1	2	...	...	...	...	...	E	—[13]	—	5	4^{14}	...	...	...	1^{15}	13	1	12	...	...	...	†P	A	?	14	13	1	...	...	...	5	...	4^{16}	...	1	...
1174	20	1	12	5	1	...	...	...	1	...	†P	—	—	4	1	2	1	...	...	...	...	...	...	...	...	E	?N	†ap	3	...	...	1^{17}	1^{18}	1^{19}	14	...	6	4	1	3^{20}
2015 } b 4369 } b	6	3	...	2	1	...	...	...	...	...	P	A	?N	4	...	...	...	3	1^{21}	22	1	19	...	1	1^{22}	E	?	I	4	2	...	...	2	...	43	2	28	3	1	9^{23}
473	5	1	...	2	1	...	...	...	1	...	E	?A[24]	—	7	2	...	2	3^{25}	...	12	...	1	10	1^{26}	...	Ne	N	N	1	...	...	1	...	...	2	...	...	2	...	...
3402	3	1	...	1	1	...	...	...	...	...	E	N	†ca	7	1	1	3	...	2^{27}	34	2	29	...	3^{28}	...	Ne	—	—	3	...	...	2	1^{29}	...	19	7	10	2	...	..
4326	10	2	...	2	2	2	...	...	...	2	ESx	—	—	—	...	...	...	...	...	—	...	...	...	...	...	Ne	A	I	7	4	...	1	...	2^{30}	...	2	...	12	2	3^{31}
504 } a 3781 } a	6	...	...	2	1	...	...	3	...	...	Ne	?N	I	6	...	2	2^{32}	2	...	46	...	2	34	5	5	E	N	?	2	2	...	...	...	...	...	...	...	...	...	...
1365	2	...	...	...	1	...	...	1	...	...	I	—	—	6	2	4	...	...	...	5	...	5	...	...	...	†P	—	—	...	...	...	...	...	...	...	...	...	...	...	...
2070	8	1	...	5	2	...	...	...	...	...	Ne	—	—	5	...	5	...	...	...	...	...	...	...	...	...	I	—	—	2	...	2	...	...	...	...	...	...	...	...	...

[1]A. [2]su. [3]C. [4]E. [5]all†T. [6]"petit mal?". [7]†ca. [8]5A, 1ch. [9]F. [10]4A, 2Ne, 2Sx, 1C. [11]1E, 4F. [12]1†ca. [13]†ca. [14]1†tu. [15]F. [16]1cr, 1†ca. [17]sh. [18]P. [19]E. [20]1E, 2I. [21]E. [22]F. [23]6E, 3F. [24]†obstruct. of intestine = ca?. [25]all A, 1†ca. [26]hy. [27]E. [28]2A, 1Ne. [29]ch. [30]1F, 1I. [31]2F, 1I. [32]1rheumatism.

spring, of which 15 grew up and are known, and of these 9 were normal, 1 epileptic, 4 feeble-minded and 1 neurotic. Here, apparently "insanity" and feeble-mindedness are not due to the same missing factors and so some normal children result.

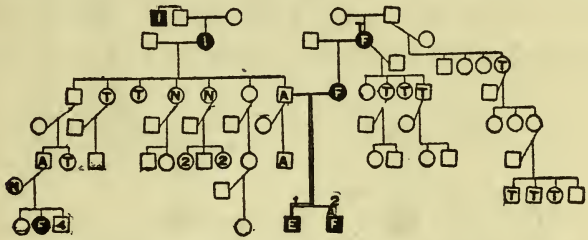

FIG. 14. The central mating is of a feeble-minded mother (of feeble-minded ancestry) with an alcoholic father (who has insane and feeble-minded relatives). The product is two children, one epileptic and one feeble-minded and alcoholic. Case 1319.

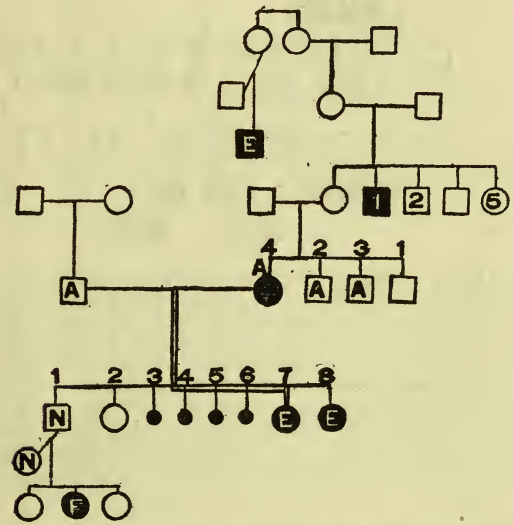

FIG. 15. The central mating is that of a feeble-minded and alcoholic woman to an alcoholic father about whose "blood" nothing more is known. There were eight children, four of whom were still-born, one died at ten years, two are epileptic and one is normal, but he has a feeble-minded daughter. Case 3189.

Table II comprises 21 fraternities derived from parents of whom one has defective mentality while the other is "alcoholic" (Fig. 10, 11, 12). Alcoholic here means "addicted to drink," "a heavy drinker," usually a sot. In this table are 8 matings of

a feeble-minded woman to an alcoholic man (Figs. 13, 14, 15). There were 61 offspring altogether, of whom 23 died early (an infant mortality of 38 per cent.). Of those that grew up 5 were normal (1 of these doubtfully so), 10 epileptic, 17 feeble-minded, 5 neurotic and one sexually immoral. This result is remarkable. It indicates either that some of the alcoholic fathers were also feeble-minded, while others had merely half of their germ cells

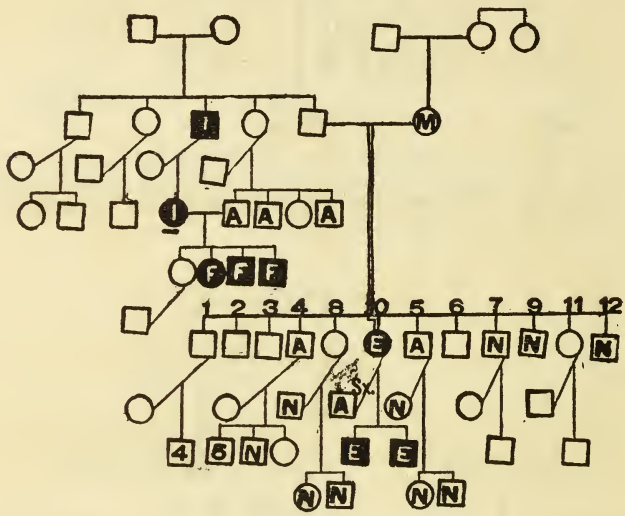

FIG. 16. This is a very instructive pedigree. The central mating near the top introduces us to a migrainous woman (of whose connections practically nothing is known) who marries a man of whom little is known except that he suffered from "paralysis" and that he had an insane brother and niece. Of the ten children who survived nothing is known of one. Of the other nine, three are normal, three neurotic, two alcoholic and one epileptic. This epileptic child marries an alcoholic and erotic man and has two epileptic sons. The insane niece, alluded to above, marries an alcoholic first cousin and has four children of whom three are feeble-minded and one died in convulsions, indicating a probable epileptic tendency. Case 2487.

defective; or there is another possibility that we shall discuss more fully below.

Table III comprises 12 fraternities containing epilepsy or feeble-mindedness in which one parent is feeble-minded or epileptic and in one case "insane," while the other shows some evidence of mental weakness, implied by the terms: migrainous, choreic, neurotic, and paralytic (Figs. 17, 18, 19). These fraternities comprise 86 offspring of whom details are known concerning about

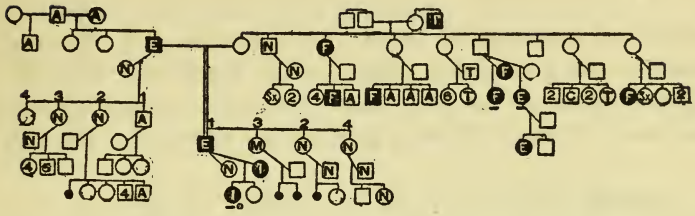

FIG. 17. The central mating is between an epileptic man (who died of paralysis) and a choreic woman (who had a feeble-minded sister), an insane uncle, and at least seven feeble-minded and epileptic nephews and nieces. There are four children; one epileptic, one migrainous and two normal. The epileptic has by an insane wife one insane and one neurotic child. Four institutional cases here. Case 4078.

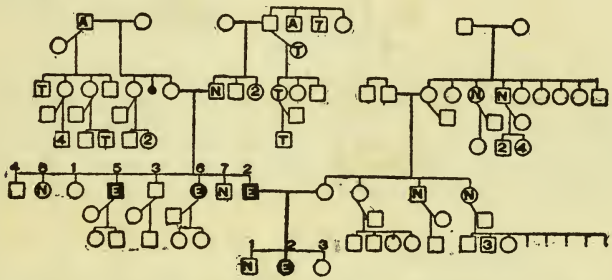

FIG. 18. The central mating is between an epileptic man (who has two epileptic sibs) and a neurotic mother (who has a sister and a niece with chorea). Of the two children old enough to classify one is epileptic and the other normal. Case 3402.

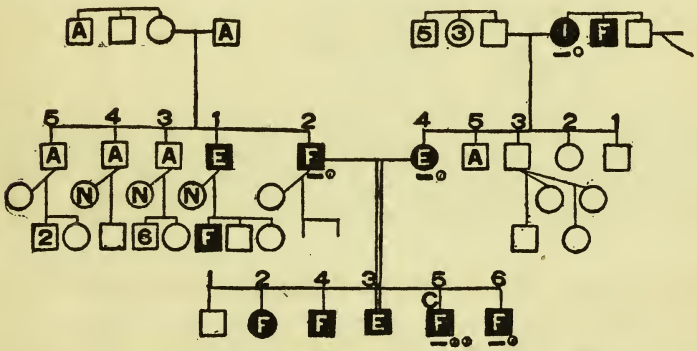

FIG. 19. This chart shows the product of an epileptic woman (whose mother was insane and uncle was feeble-minded) and a feeble-minded paralytic (who has an epileptic brother and a feeble-minded nephew). Of the six children one died in infancy, the others are all mentally defective. Six persons on this chart are or have been in the public care and three more should be. Case 4369.

53. Of these, 22, or something under half, are normal; 15 (a little over a quarter) are epileptic, 3 feeble-minded, 9 neurotic, 2 alcoholic and 2 sexually immoral. Of these tainted conditions migraine seems to be most closely related to feeble-mindedness, since none of the 7 offspring of defective migrainous matings are

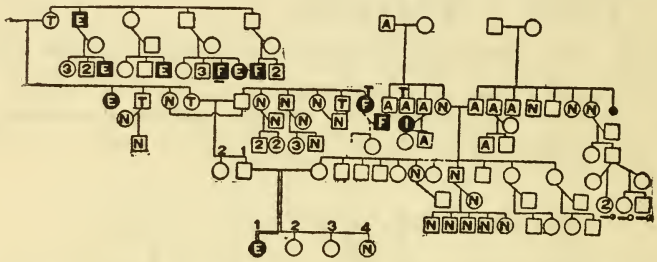

FIG. 20. This family has married into that of Fig. 19 and a grandson of the union has married into an alcoholic and neurotic strain. Of the four children one died when twenty years old of spinal meningitis (like her father), one is neurotic, one is epileptic and the youngest is normal. In the united families are thirteen persons who have been cared for in public institutions; and many others that should be. Case 2013.

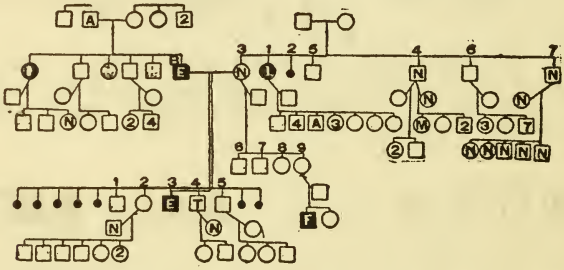

FIG. 21. The central mating is between a normal woman (who had an insane sister, and by a later marriage, a neurotic daughter and feeble-minded grandchild) and an epileptic man. There were seven miscarriages and five children, of whom one died in infancy, one is epileptic, one neurotic and one apparently normal. Most of the blank symbols represent children, who died in infancy; there are seventeen such children. Case 1395.

normal, though half are merely "neurotic." Altogether the result is about what is to be expected on the assumption that the tainted parent is simplex (i. e., has half his germ cells without the factor for full mental development). The deficiency of normals is due to the fact that some of the simplex offspring are neurotic.

Table IV shows the results of the marriage of a normal and

THE FREQ ND THE OTHER *Normal*; TOGETHER WITH THE MENTAL CONDITION OF THING IS KNOWN.

*Abbrevi*eic; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt ather's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy ve insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; n dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchas

Ser. No.	To	mf	mm	m's sibs.						Other m's relatives.					
				Total.	† early.	X	N	Ne	np.	Total.	† early.	X	N	Ne	np
829		...	.....	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1872c		—	†bd	5	2	...	2	1	...	49	11	22	12	...	4^{2}
2337		—	—	4	.....	2	...	...	2^{4}	9	5	3	...	...	1^{5}
2685a			E	.....	.....	...	...	...	...	.....	.....	...	...	...	...
4318			—	3	.....	3	...	...	...	10	1	7	2	...	...
4529		A	?	2	2	...	...	...	...	27	.....	27	...	...	...
666		1N	N	7	.....	2^{13}	5	...	...	54	.....	54	...	...	...
866		?	?	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1364a		...	.....	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1395		1—	—	6	2	...	2	1^{15}	1^{14}	51	8	14	25	3	1^{14}
2124		—	—	5	.....	2^{18}	3	...	...	20	2	14	4	...	...
2207			—	5	1	1	...	2	1^{20}	47	2	38	...	...	7^{21}
2819		—	—	5	.....	...	4^{22}	...	1^{25}	35	1	14^{26}	14	5^{27}	1^{25}
3613a		—	—	3	2	...	1	...	...	.....	.....	...	...	...	...
4326b		Sx	Ne	.....	.....	...	...	...	...	.....	.....	...	...	...	...
4357		—	—	3	.....	3	...	...	...	1	....	1	...	...	...
4392		1?	—	3	.....	2^{30}	...	1	...	.....	.....	...	...	...	...
4270		—	E	15	4	11	...	...	...	22	7	14	1	...	...
167b		...	.....	.....	.....	...	...	...	...	.....	.....	...	...	...	...
380		?	N	6	.....	1	3	1^{38}	1^{39}	26	.....	19^{40}	...	7^{41}	...
552		?	?	.....	.....	...	...	...	...	.....	.....	...	...	...	...
898		?	?	9^{44}	.....	7	1	1^{45}	...	72	.....	61^{46}	4	3^{47}	4^{48}
1342		?	†T	2	2	..	...	...	...	25	.....	9	7	3	6^{51}
1496		—	—	2	.....	2	...	...	...	.....	.....	...	...	...	...

[1]lazy. 1†ca. [19]I. [20]F. [21]3E, 4F. [22]†ca. [23]2su. [24]1E, 1F, 1I. [25]E. [26]1†bd. [27]A. [28]†P. [29]fainting s [44]1D. [45]A. [46]8D. [47]1ch. [48]1E, 2F, 1I. [49]dw. [50]1F, 1I. [51]3E, 3I. [52]†enc.

TABLE IV.

THE FREQUENCY OF THE DIFFERENT CLASSES OF MENTAL CONDITION IN THE CHILDREN OF PARENTS ONE OF WHOM IS MENTALLY DEFECTIVE AND THE OTHER *Normal*; TOGETHER WITH THE MENTAL CONDITION OF THE GRANDPARENTS, THE PARENTS' SIBS, AND OTHER BLOOD RELATIONS ABOUT WHOM SOMETHING IS KNOWN.

Abbreviations.—A, alcoholic; ap, apoplexy; B, blind; bd, affected with Bright's disease; C, criminalistic; ca, cancerous; cb, childbirth; ch, choreic; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, delirium tremens; dw, dwarf; dy, dropsical; E, epileptic; ec, eccentric; en, encephalitis; F, feebleminded; f, father; ff, father's father; fm, father's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, insane; id, ill defined organic disease; kd, kidney disease; la, locomotor ataxia; M, migrainous; m, mother; md, manic depressive insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, obesity; P, paralytic; pa, paranoiac; pn, pneumonia; S, syphilitic; sb, softening of the brain; sco, scoliosis; sd, senile dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis; tf, typhoid fever; tu, tumor; va, varicose veins; ve, vertigo; W, vagrant; x, unknown; ? implies doubt; † died.

Ser. No.	Children.										f	ff	fm	f's sibs.						Other f's relatives.						m	mf	mm	m's sibs.						Other m's relatives.					
	Total.	†early.	X	N	E	F	I	Ne	A	P				Total.	†early.	X	N	Ne	np	Total.	†early.	X	N	Ne	np				Total.	†early.	X	N	Ne	np.	Total.	†early.	X	N	Ne	np
829	7	1	3	1	1	1	...	...	...	...	N[1]	...	...	...	...	...	...	...	...	...	...	...	...	...	...	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1872c	6	...	5	...	...	1	...	...	...	...	N	—	—	...	...	...	...	...	...	...	...	...	...	...	...	F	—	†bd	5	2	...	2	1	...	49	11	22	12	...	4[2]
2337	4	3[3]	...	1	...	...	...	...	...	...	N	—	—	11	1	...	10	...	...	57	9	48	...	...	...	F	—	—	4	...	2	...	...	2[4]	9	5	3	...	...	1[5]
2685a	3	...	...	2	1	...	...	...	...	...	?N	...	...	...	...	...	...	...	...	...	...	...	...	...	...	F	?[6]	E	...	...	...	...	...	...	...	...	...	...	...	...	...
4318	4	2	...	1	1	...	...	...	...	...	N	—	—	6	1	...	5	...	...	8	1	...	7	...	...	F[7]	†P	—	3	...	3	...	...	...	10	1	7	2	...	...
4529	9	...	2	3	1	1	...	1[8]	1	...	?N	?	†P	7	...	4[9]	...	2	1[10]	38	...	35	1	2[11]	...	?F†bd	A	?	2	2	...	...	...	...	27	...	27	...	...	...
666	10	...	6	2	1	...	...	...	...	1	E	A	—	...	...	...	...	...	1[12]	0	...	...	...	...	...	N	N	N	7	...	2[13]	5	...	...	54	...	...	...	...	...
866	3	1	...	1	1	...	...	...	...	...	E	—	—	1	...	...	1	...	...	2	...	2	...	...	...	?N	?	?	...	...	...	...	...	...	...	...	...	...	...	...
1364a	3	1	...	1	1	...	...	...	...	...	E	I	†P	1	...	...	...	1	...	11	2	9	...	...	...	N	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1395	12	8	...	2	1	...	...	1	...	...	E	A	N	5	2	...	2	...	1[14]	17	2	13	1	†ap	...	N	—	—	6	2	...	2	1[15]	1[14]	51	8	14	25	3	1[14]
2124	8	2	...	4	1	...	...	1	...	...	E	A	†P	11	4	...	...	6	1[16]	50	12	13	2	5	1[17]	N	—	—	5	...	2[18]	3	...	...	20	2	14	4	...	...
2207	7	1	...	...	2	...	...	4	...	...	N	†bd	—	4	...	...	4	...	...	28	1	19	6	1	1[19]	E	E	—	5	1	1	...	2	1[20]	47	2	38	...	...	7[21]
2819	7	4	...	1	1	...	...	1	...	...	E	su	—[22]	—	...	...	...	...	...	23	...	17	...	3[23]	3[24]	N	—	—	5	...	...	4[22]	...	1[25]	35	1	14[26]	14	5[27]	1[28]
3613a	5	1	2	1	...	...	...	...	...	...	?N	...	...	...	...	...	...	...	...	...	...	...	...	...	...	E[21]	—	—	3	2	...	1	...	...	...	...	...	...	...	...	...
4326b	3	...	...	3	...	...	...	...	...	...	N	...	...	...	...	...	...	...	...	...	...	...	...	...	...	E	E Sx	Ne	...	...	...	...	...	...	...	...	...	...	...	...	...
4357	3	2	...	...	1	...	...	...	...	...	N	—	—	3	...	...	2	1[28]	...	8	...	8	...	...	...	?E[29]	—	—	3	...	3	...	...	...	1	...	1	...	...	...
4392	12	2	...	...	4	1	...	5	...	...	N	—	—	3	...	3	...	...	...	...	...	...	...	...	...	E[30]	†P	—	3	...	2[30]	...	1	...	...	...	...	...	...	...
4270	1	...	...	...	1	...	...	...	...	...	E	—	—	9	...	8	...	...	...	...	...	...	...	...	...	N	—	E	15	4	11	...	...	...	22	7	14	1	...	...
167b	6	...	4	2	...	...	...	...	...	...	†T	...	...	...	...	...	...	...	...	...	...	...	...	...	...	I[32]	...	...	...	...	...	...	...	...	...	...	...	...	...	...
380	4	...	1[33]	1	1	1	...	...	...	...	I	?	I[34]	4[35]	...	3	1	...	...	44	...	33[36]	10	...	1	?N[37]	†P	N	6	...	1	3	1[38]	1[39]	26	...	19[40]	...	7[41]	...
552	6	...	2	2	2	...	...	...	...	...	†T	?	?	2	...	2	...	...	...	...	...	...	...	...	...	sd[42]	?	?	...	...	...	...	...	...	...	...	...	...	...	...
898	3	...	1	1	1	...	...	...	...	...	I,†bd	†kd	—	2	...	1	1	...	...	10	...	10	...	...	...	N[43]	?	?	9[44]	...	7	1	1[45]	...	72	...	61[46]	4	3[47]	4[48]
1342	3	1	...	1[49]	1	...	...	...	...	...	I	—	—	1	...	...	1	...	...	35	4	16	12	1	2[50]	†dy	†T	†T	2	2	..	...	...	...	25	...	9	7	3	6[51]
1496	4	1	1	...	1	...	...	1[52]	...	...	I	—	—	6	...	6	...	...	...	...	...	...	...	...	...	†dy	—	—	2	...	2	...	...	...	...	...	...	...	...	...

[1]lazy. [2]1E, 3F. [3]all st. [4]1E, 1F. [5]I. [6]unk, out of wedlock. [7]ca. [8]ch. [9]1bd, 1†P. [10]I. [11]C, illiterate. [12]E. [13]1†bd. [14]I. [15]P. [16]F. [17]E. [18]rheum, 1†ca. [19]I. [20]F. [21]3E, 4F. [22]†ca. [23]2su. [24]1E, 1F, 1I. [25]E. [26]1†bd. [27]A. [28]†P. [29]fainting spells. [30]†ca. [31]sister's dau. to No. 361, mother. [32]also B. [33]SM. [34]sd. [35]3†T. [36]3T, 1ca. [37]†bd. [38]†ca. [39]F. [40]1†ca. [41]all †P. [42]P.* [43]†ca. [44]1D. [45]A. [46]8D. [47]1ch. [48]1E, 2F, 1I. [49]dw. [50]1F, 1I. [51]3E, 3I. [52]†enc.

a defective. When the defective parent is feeble-minded, out of 17 known offspring 7 are normal; and when the defective parent is epileptic, out of 35 children 16 are normal (Figs. 21, 22, 23). In each case the normals are slightly fewer than the expected 50 per cent., doubtless because some of the simplex offspring are neu-

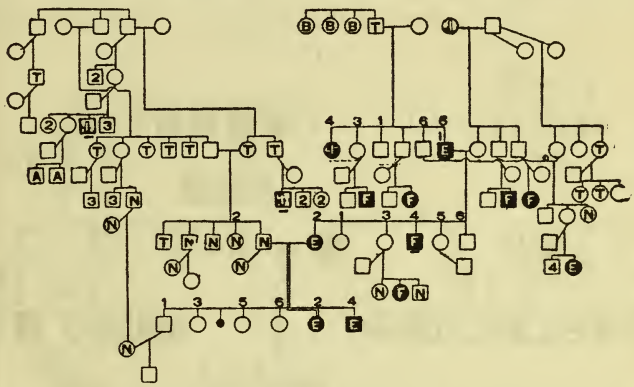

FIG. 22. This is the history of a family of intelligent people where there are many consanguineous marriages. Some fraternities consist wholly of normal persons but there are twelve fraternities containing one or more epileptic or mentally defective persons. An epileptic woman marries into one of the "wholly normal" fraternities and has two epileptic and four neurotic children. Case 2207.

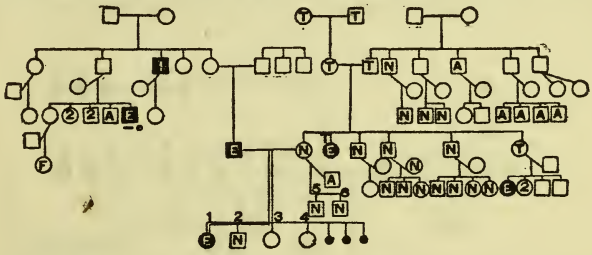

FIG. 23. A normal woman (who has an epileptic sister and an epileptic niece) marries an alcoholic man and has two normal children; but later, after she marries an epileptic man, there are reared one normal, one neurotic and one epileptic child. Case 2819.

rotic. Similarly with the normal × "insane" matings (Fig. 24). Now, by hypothesis, such matings should produce all normal (or neurotic) offspring *unless* in every case the normal parent is simplex and forms defective germ cells. We look therefore with interest at the condition of the families of these normal parents.

There are 24 of them; practically nothing more is known about the families of 11 of them. In the remaining 13 cases, there is positive evidence of nervous weakness in the families of 9, as shown in Table A. In the remaining 4 there is no evidence; however, negative evidence must be received with caution as information concerning mental weakness is sometimes withheld from the field worker. The nature of the epilepsy in the children of such

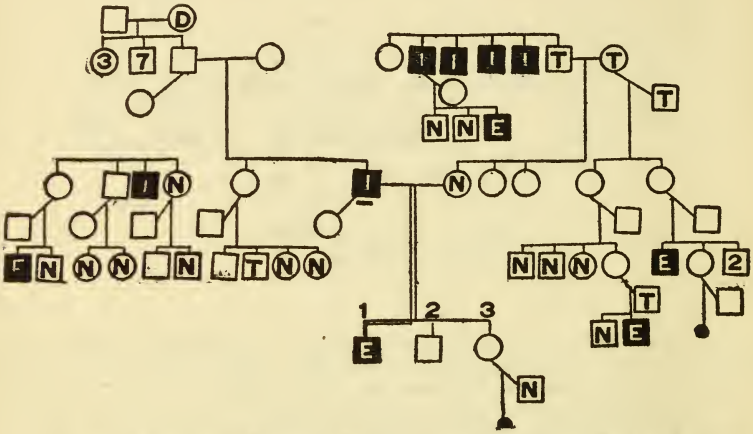

FIG. 24. A normal woman (who has four insane uncles and a cousin, a nephew and a grandnephew each epileptic) marries a man who is "insane" has one half brother insane and a nephew feeble-minded. Of the three children, one dies in infancy, one is a dwarf and one an epileptic. Case 1342.

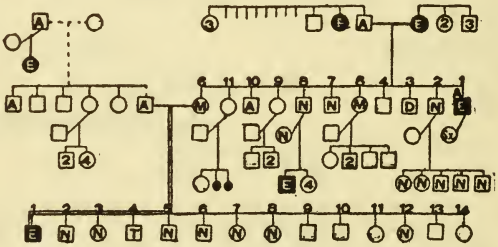

FIG. 25. Pedigree chart showing the product of a migrainous woman (whose mother, one brother and a nephew were epileptic and one aunt feeble-minded) and an alcoholic man (with epileptic half-sisters). This is a negro family; of fourteen children, five died in infancy, the first born was epileptic, the rest appear to be normal, though some are too young to predict their fate. Case 1579.

a normal parent from a normal family is not precisely known. Here, if anywhere in our tables, we might look for epilepsy induced by the powerful stimuli of syphilis or trauma.

THE BHT MENTAL WEAKNESS (INCLUDING ALCOHOLISM), TOGETHER WITH HOM SOMETHING IS KNOWN.

*Abbr*pple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, delirium itre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, insane; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, obesity; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis;

Ser. No.		mm	m's sibs.						Orher m's relatives.					
			Total.	† early.	X	N	Ne	np	Total.	† early.	X	N	Ne	np
1524		N	9	2	2	5		...	12	.....	10	2	...	...
2691	)	M	3	.....	...	3	...	...	40	4	32	1	...	3[3]
2791		N†dy	2	1	1	...	...	...	16	.....	15	1	...	...
3592		†ap	3	.....	3	...	...	...	3	.....	...	...	2[5]	1[6]
3951a		P	8	.....	...	7	1	...	17	.....	11[7]	...	1[8]	5[9]
4286a		M	8	3	...	1	3	1[10]	.....	.....	...	...	...	...
4475b		—	4	1	1[11]	...	2[12]	...	.....	.....	...	...	...	...
1716		N, D	10	1	3[14]	5	1	...	50	3	43[15]	...	...	4[16]
4286		†ca	7	.....	5	2	...	...	29	.....	24	2	2[19]	1[20]
2041		N	7	.....	7	...	...	...	.....	.....	...	...	...	...
514		.....	8	.....	6	2	...	...	41	.....	39[24]	...	...	2[25]
1561a		E	3	.....	...	?3	...	...	13	1	7	3	2[27]	...
2924		†ca	5	1	...	2	...	2[30]	21	12	2	4	3[31]	...
3376	)	—	3	.....	...	1	2[35]	...	8	.....	8	...	...	...
3641		A	8	3	...	3	2[36]	...	12	.....	7	5	...	...
4002b	..	.....	.....	.....	...	...	...	...	.....	.....	...	...	...	...
2673		E	6	3	1	2	...	...	8	3	1	4	...	...
3689		Ne	3	.....	1	...	2	...	.....	.....	...	...	...	...
3171		N	.....	.....	...	...	...	...	2	.....	2	...	...	...
1084	..	†dy	3	3[44]	...	...	...	...	2	.....	1	1	...	...
1841	y	N	6	.....	...	5	...	1[46]	17	4	10	2	...	1[47]
3211		N, D	6	.....	1	5[49]	...	...	.....	.....	...	...	...	...
3794		rh	6	.....	1	4	1[50]	...	10	.....	9	...	...	1[51]
4402		—	7	1	4	...	2	...	19	.....	16	...	3[53]	...
3556		N	4	.....	...	3	1[54]	...	15	.....	14	...	...	1[55]
3921		A	4	1	2	...	1[57]	...	3	1	2	...	...	...
2029		—	3	.....	3	...	...	...	86	3	78	2	1	2[60]
1579		E	10	1	3	3	2	1[61]	40	6	27	5	...	2
4912		†P	5	.....	5	...	...	...	2	.....	1	1	...	...
402a		N	3	.....	3[63]	...	...	...	1	.....	...	...	1	...
2013a, 4369a		N	10	5	3	2	...	...	42	3	23	8	8[66]	...
3614		†P	6	1	3	...	2[68]	...	25	4	16	2	1[68]	2[69]
1682		†dy	5	.....	2	2	1[71]	...	2	2	...	...	...	...
1852		†T	2	.....	...	2	...	...	5	.....	1	3	1	...
643a	..	.....	0	.....	...	...	...	...	1	.....	1	...	...	...
1162	..	†T	1	.....	1	...	...	...	10	.....	10	...	...	...
2487a		—	1	.....	1	...	...	...	.....	.....	...	...	...	...
242	..	.....	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1872a		—	1	.....	1	...	...	...	2	.....	2	...	...	...

[1]sd†e. [20]E. [21]M. [22]1D, 1rh. [23]1†en, 1†105 yrs. [24]1 ap, 1 dy, 1 en. [25]1F. 1I, [26]rh. [27] [40]E. [41]A. [42]1M. [43]1E, 1I. [44]2ht, 1bd. [45]I. [46]E. [47]F. [48]I. [49]1D. [50]M. [51]F. [52] [70]1D. [71]†P. [72]1 also C. [73]dt. [74]All still born or † early. [75]Sx. [76]E. [77]E. [78]

TABLE V.

THE FREQUENCY OF THE DIFFERENT CLASSES OF MENTAL CONDITION IN THE CHILDREN OF PARENTS BOTH OF WHOM SHOW SOME EVIDENCE OF SLIGHT MENTAL WEAKNESS (INCLUDING ALCOHOLISM), TOGETHER WITH THE MENTAL CONDITION OF THE GRANDPARENTS, THE PARENTS' SIBS AND OTHER BLOOD RELATIVES ABOUT WHOM SOMETHING IS KNOWN.

Abbreviations.—A, alcoholic; ap, apoplexy; B, blind; bd, affected with Bright's disease; C, criminalistic; ca, cancerous; cb, childbirth; ch, choreic; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, delirium tremens; dw, dwarf; dy, dropsical; E, epileptic; ec, eccentric; en, encephalitis; F, feebleminded; f, father; ff, father's father; fm, father's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, insane; id, ill defined organic disease; kd, kidney disease; la, locomotor ataxia; M, migrainous; m, mother; md, manic depressive insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, obesity; P, paralytic; pa, paranoiac; pn, pneumonia; rh, rheumatism; S, syphilitic; sb, softening of the brain; sco, scoliosis; sd, senile dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis; tf, typhoid fever; tu, tumor; va, varicose veins; ve, vertigo; W, vagrant; x, unknown; ? implies doubt; † died.

Ser. No.	Children.											f	ff	fm	f's sibs.						Other f's relatives.						m	mf	mm	m's sibs.						Orher m's relatives.					
	Total.	† early.	X	N	E	F	I	Ne	A	P	Sx				Total.	† early.	X	N	Ne	np	Total.	† early.	X	N	Ne	np				Total.	† early.	X	N	Ne	np	Total.	† early.	X	N	Ne	np
1524	5	...	...	3	1	1	...	...	...	...	...	Ne	A†P	...	6	...	...	1	5	...	22	2	19	...	...	1	Ne	A	N	9	2	2	5		...	12	...	10	2	...	...
2691	4	...	...	2	2	...	...	...	...	...	...	Ne	†bd	1[1]	1	...	...	1	...	...	26[2]	...	26	...	...	...	Ne	†ap	M	3	...	...	3	...	...	40	4	32	1	...	3[3]
2791	5	3	1	...	1	...	...	...	...	...	...	Ne	A	—	—	...	...	...	...	...	...	...	...	...	...	...	Ne[4]	—	N†dy	2	1	1	...	...	...	16	...	15	1	...	...
3592	7	1	1	2	2	...	1	...	...	...	...	Ne	—	—	7	...	7	...	...	...	...	...	...	...	...	...	Ne	—	†ap	3	...	3	...	...	...	3	...	...	...	2[5]	1[6]
3951a	4	1	...	1	2	...	...	...	...	...	...	Ne	—	—	2	1	1	...	...	...	2	...	1	...	1[7]	...	Ne	—	P	8	...	...	7	1	...	17	...	11[7]	...	1[8]	5[9]
4286a	2	...	...	...	...	...	...	2	...	...	...	Ne	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Ne	M	M	8	3	...	1	3	1[10]	...	...	...	...	...	...
4475b	7	...	...	5	1	...	...	...	1	...	...	Ne	—	—	...	...	...	...	...	...	...	...	...	...	...	...	Ne	—	—	4	1	1[11]	...	2[12]	...	...	...	...	...	...	...
1716	5	1	...	2	1	...	...	...	...	...	1	M	A	—	9	...	2	...	4	3[13]	49	5	39	1	3	1[13]	M[14]	A	N, D	10	1	3[14]	5	1	...	50	3	43[15]	...	...	4[16]
4286	9	3	...	1	1	...	...	4[17]	...	...	...	M[18]	—	—	7	...	4	1	2	...	7	...	6	1	...	...	M	†bd	†ca	7	...	5	2	...	...	29	...	24	2	2[19]	1[20]
2041	7	...	...	...	4	...	...	3	...	...	...	M	—	†P	1	...	...	...	1[21]	...	...	...	...	...	...	...	M	†P	N	7	...	7	...	...	...	...	...	...	...	...	...
514	6	...	1	2	1	...	...	2	...	...	...	Ne	N	†P	6	...	3[22]	3	...	...	49	...	49[23]	...	...	...	MNe	N	...	8	...	6	2	...	...	41	...	39[24]	...	...	2[25]
1561a	11	3	1[26]	1	1	1	...	2	2	...	...	Ne[26]	—	—	...	...	...	...	...	...	...	...	...	...	...	...	M	A	E	3	...	...	?3	...	...	13	1	7	3	2[27]	...
2924	4	...	...	...	2	...	...	2	...	...	...	Ne	...	...	5	2	1	...	2[28]	...	30	2	16	9	3[29]	...	M	—	†ca	5	1	...	2	...	2[30]	21	12	2	4	3[31]	...
3376	10	1	1	4	1	...	...	3[32]	...	...	...	Ne	—	—	7	...	6	...	1[33]	...	7	...	6	...	1[34]	...	M	N, D	—	3	...	...	1	2[35]	...	8	...	8	...	...	...
3641	8	6	...	1	1	...	...	...	...	...	...	Ne	—	—	3	...	3	...	...	...	6	...	6	...	...	...	M	M	A	8	3	...	3	2[36]	...	12	...	7	5	...	...
4002b	6	...	...	4	...	...	...	2[37]	...	...	...	M	N	—	5	...	1	3	...	1[38]	...	...	...	...	...	...	Ne	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2673	8	1	...	3	1	1	...	2[39]	...	...	...	A	—	—	7	...	3	2	1	1[40]	4	...	2	1	...	1[40]	Ne	—	E	6	3	1	2	...	...	8	3	1	4	...	...
3689	7	4	...	2	1	...	...	...	...	...	...	ANe	rh	—	7	1	5	...	1[41]	...	2	...	2	...	...	...	Ne	—	Ne	3	...	1	...	2	...	...	...	...	...	...	...
3171	13	5	...	3	2	...	...	3[42]	...	...	...	A	A	†bd	2	...	...	2	...	...	6	...	4	...	...	2[43]	Ne	N	N	...	...	...	...	...	...	2	...	2	...	...	...
1084	2	...	1	...	1	...	...	...	...	...	...	A	N	†bd	3	...	3	...	...	...	0	...	...	...	...	...	Ne	...	†dy	3	3[44]	...	...	...	...	2	...	1	1	...	...
1841	10	4	...	5	1	...	...	...	...	...	...	A	A	B†ap	...	...	...	...	...	...	7	...	5	...	1	1[45]	Ne	A†dy	N	6	...	...	5	...	1[46]	17	4	10	2	...	1[47]
3211	1	...	...	...	1	...	...	...	...	...	...	A	—	—	1	...	...	...	...	1[48]	...	...	...	...	...	...	Ne	—	N, D	6	...	1	5[49]	...	...	...	...	...	...	...	...
3794	7	2	...	4	1	...	...	...	...	...	...	A	†T	rh	2	...	...	2	...	...	...	...	...	...	...	...	Ne	A	rh	6	...	1	4	1[50]	...	10	...	9	...	...	1[51]
4402	9	3	...	3	1	...	...	1	1	...	...	A	—	—	1	...	1[52]	...	...	...	...	...	...	...	...	...	Ne	—	—	7	1	4	...	2	...	19	...	16	...	3[53]	...
3556	10	5	...	3	1	...	...	1	...	...	...	A	Ne	—	3	1	...	1	1	...	10	...	6	2	2[54]	...	Ne	—	N	4	...	...	3	1[54]	...	15	...	14	...	...	1[55]
3921	7	4	...	...	1	...	...	2[56]	...	...	...	A, S	A	—	5	...	...	2	3[57]	...	8	3	5	...	...	...	M	—	A	4	1	2	...	1[57]	...	3	1	2	...	...	...
2029	4	...	...	1	1	...	...	2[58]	...	...	...	A	A†bd	N	2	1	...	...	1	...	86	9	60	10	3	4[59]	M	—	—	3	...	3	...	...	...	86	3	78	2	1	2[60]
1579	14	4	2	7	1	...	...	...	...	...	...	A	A	—	5	...	4	...	1	...	7	...	6	...	...	1[61]	M	A	E	10	1	3	3	2	1[61]	40	6	27	5	...	2
4912	3	2	...	...	1	...	...	...	...	...	...	A, rh	—	M, P	4	...	...	4	...	...	9	...	...	9	...	...	MNe	—	†P	5	...	5	...	...	...	2	...	1	1	...	...
402a	1	...	...	...	1	...	...	...	...	...	...	†ap	†rh	...	8	...	6	...	1	1[62]	5	...	3	2	...	...	Ne	A	N	3	...	3[63]	...	...	...	1	...	...	...	1	...
2013a } 4369a }	4	1[64]	...	1	1	...	...	1	...	...	...	†sm	Ne	†T	1	1	...	...	...	...	63	8	32	8	1	14[65]	Ne	A	N	10	5	3	2	...	...	42	3	23	8	8[66]	...
3614	11	2	...	3	4	...	1	...	1	...	...	A	1	—	13	1	7	...	4	1[67]	49	3	41	...	5[68]	...	hy	—	†P	6	1	3	...	2[68]	...	25	4	16	2	1[68]	2[69]
1682	9	2	...	4	2	...	...	1	...	...	...	A†bd	—	—	1	...	1	...	...	...	6	...	6[70]	...	...	...	†P	—	†dy	5	...	2	2	1[71]	...	2	2	...	...	...	...
1852	8	2	...	2	3[72]	...	...	1	...	...	...	ASx1[73]	A	A	—	...	...	...	...	...	...	...	...	...	...	...	Sx	A	†T	2	...	...	2	...	...	5	...	1	3	1	...
643a	17	10[74]	1	4	1	...	...	1	...	...	...	A	E	N	4	1	2	1[76]	...	...	22	...	10	10	...	2[76]	A	...	...	0	...	...	...	...	...	1	...	1	...	...	...
1162	2	...	...	...	1	...	...	1	...	...	...	A	—	—	1	...	1	...	...	...	2	...	1	...	...	1[77]	A	...	†T	1	...	1	...	...	...	10	...	10	...	...	...
2487a	12	2	...	3	1	...	1	4[78]	1	...	...	P	—	—	4	...	...	...	...	1[79]	13	...	5	...	3	5[80]	M	—	—	1	...	1	...	...	...	...	...	...	...	...	...
242	8	...	3	3	1	?1[81]	...	...	...	...	...	†P	...	...	6	...	5[82]	1	...	...	...	...	...	...	...	...	P	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1872a	12	7	...	3[83]	1	1	...	...	...	...	...	†P	B	—	2	...	2	...	...	...	...	...	...	...	...	...	†P	—	—	1	...	1	...	...	...	2	...	2	...	...	...

[1]sd†ca. [2]1†bd, 1dfm. [3]1I, 2E. [4]†P. [5]P. [6]E. [7]8†T, 1†ca. [8]†P. [9]3E, 2I. [10]E. [11]†ca. [12]1A, 1M. [13]F. [14]1†ca. [15]2†ca. [16]1E, 3F. [17]3Ne, 1ch. [18]†bd. [19]1A, 1Ne. [20]E. [21]M. [22]1D, 1rh. [23]1†en, 1†105 yrs. [24]1 ap, 1 dy, 1 en. [25]1F. 1I, [26]rh. [27]1P, 1 su. [28]ch, 1P. [29]1A, 1ch. [30]convulsions at cb. [31]hy, 1 also ca. [32]1 palsy, 1M, 1P. [33]†P. [34]Sx. [35]†ap. [36]A. [37]M. [38]E (400 a, son). [39]1ch, 1M. [40]E. [41]A. [42]1M. [43]1E, 1I. [44]2ht, 1bd. [45]I. [46]E. [47]F. [48]I. [49]1D. [50]M. [51]F. [52]†ca. [53]A [54]1A. [55]†ómo. conv. [56]1M, 1Ne. [57]A. [58]1C, 1 Ne. [59]2E, 2F. [60]1F and C, 1 sd. [61]E. [62]I. [63]†dy. [64]sm. [65]1I, 7E, 6F. [66]A. [67]I. [68]A. [69]E. [70]1D. [71]†P. [72]1 also C. [73]dt. [74]All still born or † early. [75]Sx. [76]E. [77]E. [78]1 has spinal trouble. [79]sb. [80]1I, 1E, 3F. [81]C?. [82]1ca. [83]2†bd.

Table V shows us the condition of the offspring of two parents both of whom fall into the tainted classes: neurotic, migrainous, alcoholic, hysteric, paralytic. Bunching this heterogeneous collection we find that of 186 classified offspring 82, or 44 per cent., are "normal"; about 30 per cent. are epileptic or imbecile and the remainder insane (2 per cent.) and tainted. Expectation is that 25 per cent. shall be epileptic or imbecile, and this expectation is approximately realized. The remainder are, as was to be expected, normal and tainted (Figs. 25, 26).

TABLE A.

SHOWING NERVOUS CONDITION OF RELATIVES OF NORMAL PARENTS IN TABLE IV.

Serial No.	Parent.	Total known.	N	E	F	I	Ne	A	P	Sx	ch
2337	f	10	10	.....	.....	.....	.....	.....	.....	...	...
4318	f	12	12	.....	.....	.....	.....	.....	.....	...	...
4521	f	7	1	.....	.....	1	4	.....	1	...	...
666	m	7	7	.....	.....	.....	.....	.....	.....	...	...
1395	m	33	27	.....	.....	2	3	.....	1	...	...
2129	m	7	7	.....	.....	.....	.....	.....	.....	...	...
2207	f	12	10	.....	.....	1	1	.....	.....	...	...
2819	m	25	18	2	.....	.....	5	.....	.....	...	...
4270	m	2	1	1	.....	.....	.....	.....	.....	...	...
4357	f	3	2	.....	.....	.....	.....	.....	1	...	...
380	m	14	4	.....	1	.....	8	.....	1	...	...
898	m	13	5	1	2	1	2	1	.....	...	1
1342	m	16	7	3	.....	3	3	.....	.....	...	...

It is a remarkable and significant fact that when both parents have the same class of taint the proportion of offspring of that class is not exceptionally high (Table B). The conclusion is that

TABLE B.

SHOWING THE PROPORTION OF TAINTED INDIVIDUALS OF ANY CLASS WHEN BOTH PARENTS BELONG TO THAT CLASS.

Father and Mother Both in the Class Named Below.	No. of Classified Offspring.	Proportion Normal.	Proportion with the Same Trouble as Parents.	Proportion with this Trouble in the Whole Population of Offspring.
Neurotic.....	27	48%	7%	15%
Migrainous (Fig. 26).....	17	18%	0	3%
Alcoholic.....	7	56%	0	3%
Paralytic.....	10	60%	0	0

the specific defect is not inherited as a unit; but only as a mental weakness.

Table V confirms in an interesting fashion the view now

generally entertained by students of psychopathology, that the majority of cases of migraine, chorea, paralysis, neurosis, alcoholism and prostitution are associated with nervous disease or nervous defect. The new fact that our study brings out is that

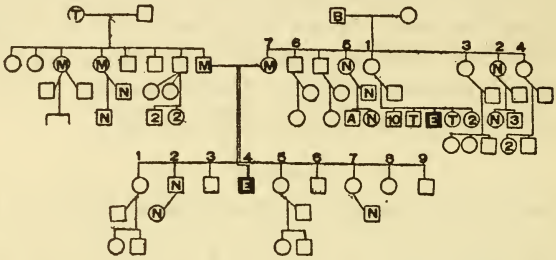

FIG. 26. The central mating of two migrainous persons. The father's side shows no defect but migraine, the mother's side shows epilepsy and the neurotic condition. Of the nine offspring three died very early, one is epileptic and the remainder are neurotic, choreic, and neurasthenic. One of the neurotic children (No. 1) married a neurotic man and they have two children, both neurotic. Case 4286.

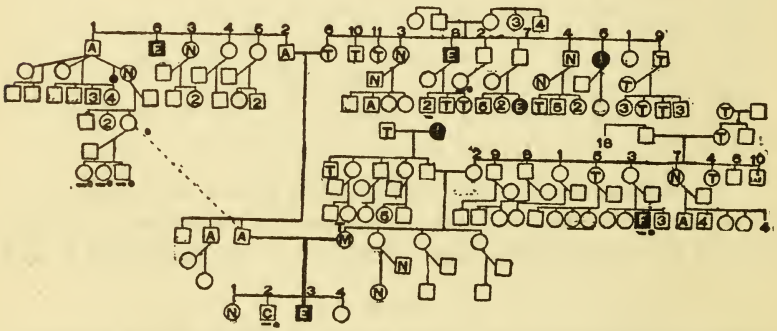

FIG. 27. In the next to the last generation we find a migrainous woman (whose father's mother had senile dementia and one of whose cousins was feeble-minded) married to an alcoholic unchaste man belonging to a highly neuropathic family. Of the four children one is normal, one neurotic, one criminalistic and one epileptic, who is at the State Village. This family has furnished nine inmates of institutions. Case 2029.

these tainted, nervous conditions are often if not usually simplex in the factor that makes for vigorous mentality; i. e., they arise from the union of a germ cell with and one without that factor.

Table VI yields facts of importance concerning the progeny out of matings between the "tainted" and "normals" in which epilepsy occurs. There are 47 fraternities from such matings (Figs. 28, 29, 30, 31). Expectation is that since epilepsy occurs

THE THE OTHER IS *Normal*; TOGETHER WITH THE MENTAL CONDITION OF NOWN.

A cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; np, dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, u

Se No	mm	M's sibs.						Other m's relatives.					
		Total.	†early.	X	N	Ne	np	Total.	†early.	X	N	Ne	np
94	†P	2	.....	...	2^{4}	...	...	7	.....	5	2	...	...
306	†T	3	.....	2	1	...	...	13	.....	10	...	...	3^{7}
442	†dy	9	.....	7	...	1^{10}	1^{11}	.....	.....	...	...	...	...
674	†bd	4	.....	2	...	2^{13}	...	54	.....	41^{17}	7	5^{15}	1^{16}
1149	.....	6	.....	6	...	...	...	2	.....	2	...	...	...
1435	—	4	.....	4^{24}	...	...	...	13	3	9	...	1	...
4096	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
194	.....	10	.....	3	7	...	...	18	.....	7	10	...	1^{27}
145	†id	8	.....	6	...	1^{28}	1^{30}	10	.....	6	2	...	2^{31}
167	I	6	.....	4^{32}	2	...	..	5	.....	5^{33}	...	...	...
335	.....	1	.....	1	...	...	..	23	.....	8	11	...	4^{38}
340	D, rh	5	.....	2	3^{41}	...	...	20	.....	16	4	...	...
1134	.....	.....	.....	...	...	...	...	6	.....	6^{42}	...	...	...
1189	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1451	—	9	3	4	1	1	...	31	.....	30	...	1^{48}	...
1900	N	8	4	1	2	1	...	13	2	8	3	...	...
2220	—	5	.....	5^{49}	...	...	...	6	.....	1	5	...	...
2375	—	2	1	...	1	...	...	22	.....	20	2	...	...
504 378	†ht	3	.....	1	2	...	...	15	.....	11	3	1	...
362	—	2	.....	2	...	...	...	38	2	34	...	...	2^{55}
458	I	7	.....	4	2	1^{56}	...	69	13	43^{59}	10	3^{58}	...
31	.....	6	.....	5^{63}	...	1	...	.....	.....	...	...	...	...
31	.....	2	.....	...	...	2^{67}	...	8	.....	1	5	...	2^{68}
170	†bd	11	4	1	6	...	...	46	7	30	5	2	2^{70}
215	—	8	.....	8	...	...	...	.....	.....	...	...	...	...
255	.....	5	.....	...	5	...	...	18	.....	16	2	...	...
40	.....	.....	.....	...	...	...	...	.....	.....	...	...	...	...
8	.....	5	.....	1	4	1	...	2	.....	...	...	2	...
147	†P	8	3	...	...	4^{76}	1^{77}	4	3	...	1	...	...
48	†T	8	.....	2^{79}	4	1	1^{80}	10	.....	2	8	...	...
97	I†bd	12	.....	7	3	2^{83}	...	9	.....	1^{84}	8	...	...
100	.....	4	.....	...	4	...	...	43	.....	35^{88}	5	3	...
104	.....	3	.....	3^{90}	...	...	...	14	.....	6	7^{91}	1	...
156	.....	5	.....	...	...	...	...	.....	.....	...	...	...	...
174	ch	.....	4	...	...	1	...	24	4	13	1	2	4^{94}
219	rh	3	.....	...	...	2	1^{95}	27	7	9	10	1	...
243	—	6	.....	1	4	1	...	10	.....	6	2	...	2^{97}
289	—	6	2	...	2	2	...	10	.....	...	10	...	...
327	—	2	.....	1^{100}	...	1^{101}	...	10	.....	9	...	1^{102}	...
339	—	3	1	...	2	...	...	6	2	4	...	...	...
375	.....	2	1	...	1	...	...	1	.....	...	1	...	...
377	M	6	1	2	2	1^{104}	...	11	2	1	8	...	...
384	—	.....	.....	...	...	...	...	9	1	8^{108}	...	...	...
426	—	7	.....	7	...	...	...	17	.....	17	...	...	...
437	†T	1	.....	...	1	...	...	10	.....	7	2	...	1^{113}
447	—	4	1	...	...	3^{115}	...	20	.....	18	...	1	1^{116}
455	.....	7	.....	6	...	1^{118}	...	7	.....	7	...	...	...

h. [18]1M, 1Nc. [19]sh. [20]sd. [21]vertigo. [22]E. [23]1E, 1I. [24]1ca. [25]T. [26]ch. [27]F. e. [44]†P. [45]E. [46]I. [47]F. [48]ch. [49]D. [50]P. [51]F. [52]3E, 1F, 2I. [53]also rh. ed at 12 yrs. after fall from tree, traumatic? [72]1†ca. [73]A. [74]I. [75]all † can Soldier's Home. [91]1rh. [92]1E, 1F. [93]1A, 1†P. [94]allF. [95]I. [96]I. [97]F. [98]2†A, 1M, 1Ne. [116]E. [117]M. [118]A.

TABLE VI.

THE FREQUENCY OF THE DIFFERENT CLASSES OF MENTAL CONDITION IN THE CHILDREN OF PARENTS ONE OF WHOM HAS SOME FORM OF NEUROSIS AND THE OTHER IS *Normal*; TOGETHER WITH THE MENTAL CONDITION OF THE GRANDPARENTS, THE PARENTS' SIBS AND OTHER BLOOD RELATIVES ABOUT WHOM SOMETHING IS KNOWN.

Abbreviations.—A, alcoholic; ap, apoplexy; B, blind; bd, affected with Bright's disease; C, criminalistic; ca, cancerous; cb, childbirth; ch, choreic; cr, cripple; D, deaf; dau, daughter; dim, deformed; dp, dementia præcox; dt, delirium tremens; dw, dwarf; dy, dropsical; E, epileptic; ec, eccentric; en, encephalitis; F, feebleminded; f, father; ff, father's father; fm, father's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, insane; id, ill defined organic disease; kd, kidney disease; la, locomotor ataxia; M, migrainous; m, mother; md, manic depressive insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, obesity; P, paralytic; pa, paranoiac; pn, pneumonia; rh, rheumatism; S, syphilitic; sb, softening of the brain; sco, scoliosis; sd, senile dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis; tf, typhoid fever; tu, tumor; va, varicose veins; ve, vertigo; W, vagrant; x, unknown; ? implies doubt; † died.

Ser. No.	Children.											f	ff	fm	f's sibs.						Other f's relatives.						m	mf	mm	M's sibs.						Other m's relatives.					
	Total.	† early.	X	N	E	F	I	Ne	A	P	Sx				Total.	† early.	X	N	Ne	np	Total.	† early.	X	N	Ne	np				Total.	† early.	X	N	Ne	np	Total.	† early.	X	N	Ne	np
94	5	.....	3	1	1	...	...	...	...	...	...	M	†ca	†pn	6	.....	1	4^{1}	1	...	18	.....	7	9	1^{2}	1^{3}	N	†ap	†P	2	.....	...	2^{4}	...	...	7	.....	5	2	...	...
306	2	.....	...	1	1	...	...	...	...	...	...	N, cr	.....	†P	2	.....	2^{5}	...	...	...	5	.....	3	1	1^{6}	...	M	Ne	†T	3	.....	2	1	...	...	13	.....	10	...	...	3^{7}
442	11	.....	6	1	3	1^{8}	...	...	...	...	...	N	.....	.....	3	.....	3^{9}	...	...	...	.....	.....	...	...	...	...	M	†T	†dy	9	.....	7	...	1^{10}	1^{11}	.....	.....	...	...	...	...
674	3	.....	2	...	1	...	...	...	...	...	...	N	A	N	1	.....	...	1	...	...	26	.....	$2\,1^{12}$	5	...	...	M	I	†bd	4	.....	2	...	2^{13}	...	54	.....	$4\,1^{17}$	7	5^{15}	1^{16}
1149	10	6	...	1	1	...	...	2^{18}	...	...	...	N^{19}	I^{20}	—	6	2	3	...	1^{21}	...	9	2	6	...	1	...	M	.....	.....	6	.....	6	...	...	...	2	.....	2	...	...	...
1435	7	.....	1	5	1	...	...	...	...	...	...	†bd	†P	—	6	.....	...	5	...	1^{22}	29	.....	22	5	...	2^{23}	M†P	—	—	4	.....	4^{24}	...	...	...	13	3	9	...	1	...
4096a	12	.....	...	11	1	...	...	...	...	...	...	N†bd	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...	M	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
194b	2	.....	...	1^{25}	...	...	...	1^{26}	...	...	...	ch	....	†P	4	.....	3	1^{25}	...	...	11	.....	9	...	...	2	N	.....	.....	10	.....	3	7	...	...	18	.....	7	10	...	1^{27}
145	11	.....	6	3	2	...	...	...	...	...	...	Ne	Ne	.....	8	.....	7	...	1^{28}	...	7	.....	7^{29}	...	...	...	†tf	.....	†id	8	.....	6	...	1^{28}	1^{30}	10	.....	6	2	...	2^{31}
167a	8	.....	3	4	1	...	...	...	...	...	...	N	ec, W	N	1	.....	...	1	...	...	.....	.....	...	...	...	...	Ne	†T	I	6	.....	4^{32}	2	...	...	5	.....	5^{33}	...	...	...
335	7	.....	1	3	1	2	...	...	...	...	...	Ne^{34}	.....	.....	3	.....	3^{35}	...	...	...	7	.....	1	1	3^{35}	2^{37}	N, D	.....	.....	1	.....	1	...	...	...	23	.....	8	11	...	4^{38}
346a	10	.....	4	4	1	...	...	1	...	...	...	N†bd	†su	.....	8	.....	4	...	...	4^{39}	4	.....	...	3	...	1^{40}	Ne	†T	D, rh	5	.....	2	3^{41}	...	...	20	.....	16	4	...	...
1132	4	.....	2	...	1	...	...	1	...	...	...	N	Ne	†T	4	.....	4	...	...	...	3	.....	3	...	...	...	Ne	.....	.....	.....	.....	...	...	...	...	6	.....	6^{42}	...	...	...
1189	4	2	...	...	1	...	...	1^{43}	...	...	...	Ne	A	†T	3	.....	...	2	1^{44}	...	14	.....	7	6	...	1^{45}	N, cr	—	—	.....	.....	...	...	...	...	.....	.....	...	...	...	...
1451	8	2	1	3	2	...	...	...	...	...	...	†ca	A	—	5	.....	1	2	1	1^{45}	12	.....	11	...	...	1^{47}	Ne	rh	—	9	3	4	1	1	...	31	.....	30	...	1^{48}	...
1906	1	.....	...	...	1	...	...	...	...	...	...	?N	—	—	2	.....	2	...	...	...	.....	.....	...	...	...	...	Ne	—	N	8	4	1	2	1	...	13	2	8	3	...	...
2226	5	2	...	2	1	...	...	...	...	...	...	?N	—	—	4	.....	4	...	...	...	11	.....	11	...	...	...	Ne	—	—	5	.....	5^{49}	...	...	...	6	.....	1	5	...	...
2375	3	1	...	1	1	...	...	...	...	...	...	?N	†ap	—	7	2	5	...	...	...	11	.....	8	...	2^{50}	1^{51}	Ne	—	—	2	1	...	1	...	...	22	.....	20	2	...	...
504 } b 3781	5	.....	2	1	1	...	...	1	...	...	...	?N	N	I	4	.....	...	3	1	...	62	.....	4	$4\,1$	11	6^{52}	Ne[53]	†la	†ht	3	.....	1	2	...	...	15	.....	11	3	1	...
3624	3	.....	...	2	1	...	...	...	...	...	...	N	—	—	5	.....	4	...	1^{54}	...	10	.....	7	2	1^{54}	...	Ne	—	—	2	.....	2	...	...	...	38	2	34	...	...	2^{55}
4589	3	.....	...	1	1	...	...	1	...	...	...	N, rh	†ca	—	2	.....	1	...	1^{56}	...	23	1	17	...	3^{56}	2^{57}	Ne	—	I	7	.....	4	2	1^{56}	...	69	13	43^{59}	10	3^{58}	...
314a	4	.....	1	1	1	...	...	1	...	...	...	†ap	.....	.....	6	.....	5^{60}	...	†P	...	15	.....	3^{61}	$1\,2^{62}$	...	...	N	†P	.....	6	.....	5^{63}	...	1	...	.....	.....	...	...	...	...
314b	5	.....	2	3	...	...	...	...	...	...	...	†ap	.....	.....	6	.....	5^{64}	...	†P	...	15	.....	3^{65}	$1\,2^{66}$	...	...	?N	.....	.....	2	.....	...	...	2^{67}	...	8	.....	1	5	...	2^{68}
1705	8	1	...	2	1	...	...	3	...	1	...	†P	A	†P	1	.....	...	1^{69}	...	...	.....	.....	...	...	...	...	N	N	†bd	11	4	1	6	...	...	46	7	30	5	2	2^{70}
2153	6	.....	...	4	1	...	1	...	...	...	...	A, P	—	Ne	5	.....	5	...	...	...	19	.....	19	...	...	...	rh	—	—	8	.....	8	...	...	...	.....	.....	...	...	...	...
2557	3	.....	...	2	1^{71}	...	...	...	...	...	...	N	—	—	6	.....	4^{72}	2	...	...	31	.....	28	2	1^{73}	...	†ap	.....	.....	5	.....	...	5	...	...	18	.....	16	2	...	...
402b	3	.....	2	1	...	...	...	...	...	...	...	†ap	†rh	.....	8	.....	6	...	1	1^{74}	6	.....	3	2	...	1	N	.....	.....	.....	.....	...	...	...	...	.....	.....	...	...	...	...
83	4	.....	1	...	1	...	...	2	...	...	...	B	†P	va	4	.....	...	3	...	1	3	....	...	3^{75}	...	...	P, rh	A	.....	5	.....	1	4	1	...	2	.....	...	...	2	...
1475	1	.....	...	...	1	...	...	...	...	...	...	?N	?N	†P	5	1	...	3	1	...	12	6	...	6	...	...	Sx	A	†P	8	3	...	...	4^{76}	1^{77}	4	3	...	1	...	...
481	5	.....	1	2	1	1	...	...	...	...	...	A	.....	.....	7	.....	1	5^{78}	1	...	25	.....	21	1	2	1	?N	†P	†T	8	.....	2^{79}	4	1	1^{80}	10	.....	2	8	...	...
971	9	.....	...	4	2	3	...	...	...	...	...	A	A	P	11	.....	4	2	4^{81}	1^{82}	38	.....	15	5	9	9	?ND	N	I†bd	12	.....	7	3	2^{83}	...	9	.....	1^{84}	8	...	...
1006	4	.....	...	2	1	...	...	1	...	...	...	A	E	I	2	1	...	...	1	...	42	.....	26^{85}	9	2^{86}	5^{87}	N	.....	.....	4	.....	...	4	...	...	43	.....	35^{88}	5	3	...
1044	1	.....	...	...	1	...	...	...	...	...	...	A	—	—	3	.....	2	...	...	1^{89}	.....	.....	...	...	...	...	†T	†T	.....	3	.....	3^{90}	...	...	...	14	.....	6	7^{91}	1	...
1561b	4	.....	...	3	1	...	...	...	...	...	...	A	Ne	M	10	3	1	1	3	2^{92}	34	3	20	7	3	1	N	.....	.....	5	.....	...	...	...	...	.....	.....	...	...	...	...
1745a	3	1	...	1	1	...	...	...	...	...	...	A	—	—	2	.....	2	...	...	...	27	.....	22	2	2^{93}	1	†ca	A	ch	.....	4	...	...	1	...	24	4	13	1	2	4^{94}
2193	5	1	...	2	2	...	...	...	...	...	...	ASx	—	—	2	.....	2	...	...	...	—	.....	...	...	...	...	N, cr	A	rh	3	.....	...	...	2	1^{95}	27	7	9	10	1	...
2431	4	.....	...	3	1	...	...	...	...	...	...	A	A	†dy	3	.....	...	2	...	1^{95}	8	.....	8	...	...	...	N	A	—	6	.....	1	4	1	...	10	.....	6	2	...	2^{97}
2892	10	1	...	8	1	...	...	...	...	...	...	A	A	—	5	1	2^{98}	...	2^{99}	...	3	.....	...	3	...	...	N	—	—	6	2	...	2	2	...	10	.....	...	10	...	...
3274	9	4	...	1	1	2	...	1	...	...	...	A	—	—	3	.....	2	...	1	...	13	.....	13	...	...	...	†cb	—	—	2	.....	1^{100}	...	1^{101}	...	10	.....	9	...	1^{102}	...
3391	4	1	...	...	1	...	...	2	...	...	...	ANe	A	—	5	.....	1	1	3^{103}	...	11	.....	8	...	3	...	N	†ca	—	3	1	...	2	...	...	6	2	4	...	...	...
3752	7	4	1	...	2	...	...	...	...	...	...	A	—	—	4	2	2	...	...	...	.....	.....	...	...	...	...	†T	.....	.....	2	1	...	1	...	...	1	.....	...	1	...	...
3771	12	5	...	4	2	...	...	1	...	...	...	A	—	†en	6	1	...	4	1	...	22	2	5	15	...	...	N	bd	M	6	1	2	2	1^{104}	...	11	2	1	8	...	...
3846	10	2	...	5	1	...	...	2^{105}	...	...	...	A^{106}	—	—	6	.....	4	1	...	1^{107}	20	2	8	10	...	...	N	—	—	.....	.....	...	...	...	...	9	1	8^{108}	...	...	...
4262	5	1	2	1	1	...	...	...	...	...	...	A	—	—	2	.....	...	...	2^{109}	...	8	.....	6	...	2^{109}	...	N	—	—	7	.....	7	...	...	...	17	.....	17	...	...	...
4371	5	1	...	2	1	...	...	1	...	...	...	A	—	—	1	.....	...	...	1	...	74	8	34	28	1^{110}	3^{111}	—[112]	†ca	†T	1	.....	...	1	...	...	10	.....	7	2	...	1^{113}
4475a	5	.....	...	1	1	...	...	...	3	...	...	A	†T	I	2	.....	1	...	1^{114}	...	12	.....	12	...	...	...	†ca	—	—	4	1	...	...	3^{115}	...	20	.....	18	...	1	1^{116}
4552	10	5	2	...	2	...	...	1	...	...	...	A	.....	.....	3	.....	2	...	1^{117}	...	14	.....	14	...	...	...	N	.....	.....	7	.....	6	...	1^{118}	...	7	.....	6	...	...	...

[1]ID. [2]ap. [3]sb. [4]2T. [5]rh. [6]†P. [7]2E, 1F. [8]criminalistic. [9]1 cr. [10]A. [11]E. [12]1†ca, 1†obs, 1†T, 1A. [13]Ne. [14]1D. [15]2A, 1M, 2Ne. [16]E. [17]4bd, 1sm. [18]1M, 1Nc. [19]sh. [20]sd. [21]vertigo. [22]E. [23]1E, 1I. [24]1ca. [25]T. [26]ch. [27]F. [28]†P. [29]all†T. [30]F. [31]1E, 1F. [32]1T. [33]1†sm. [34]attempted suicide. [35]1 disappeared. [36]2A. [37]†dt. [38]1E, 3F. [39]3I, 1su. [40]I. [41]1†ca. [42]4B. [43]unstable. [44]†P. [45]E. [46]I. [47]F. [48]ch. [49]D. [50]P. [51]F. [52]3E, 1F, 2I. [53]also rh. and la. [54]A. [55]1I, 1E. [56]A. [57]1E, 1F. [58]2A, Ne. [59]2 † cancer. [60]3†bd. [61]1†ca. [62]B. [63]4†dy. [64]3†bd. [65]1†ca. [66]B. [67]2†P. [68]1E, 1F. [69]rh. [70]E. [71]appeared at 12 yrs. after fall from tree, traumatic? [72]1†ca. [73]A. [74]I. [75]all † cancer. [76]3A, 1†P. [77]I. [78]mostly little known, 1D. [79]2T. [80]F. [81]3A, 1C. [82]I. [83]Ne. [84]P, sm. [85]1D. [86]A. [87]2E, 1F, 1I. [88]2B, 1D, 2†ca. [89]E. [90]1 in Soldier's Home. [91]1rh. [92]1E, 1F. [93]1A, 1†P. [94]allF. [95]I. [96]I. [97]F. [98]2†ca. [99]A. [100]dfm. [101]A. [102]C. [103]A. [104]A. [105]1A. [106]ca. [107]sd. [108]1†ap, 1†dy. [109]A. [110]A. [111]1E, 1F, 1I. [112]†pn at birth of E child. [113]F. [114]†ap. [115]1A, 1M, 1Ne. [116]E. [117]M. [118]A.

in the fraternities all normal parents must belong to defective strains. In twenty-six of the families something is known concerning more than two relatives of the normal parent. Two other fraternities are included because they have known defect (Table C). Of these 28 families of normal parents of epileptic children

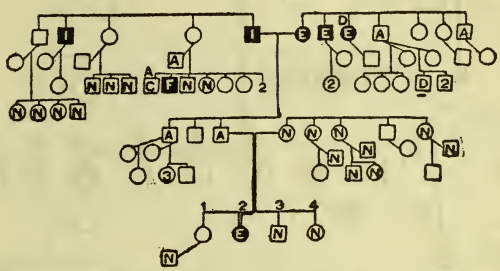

FIG. 28. The central mating is between a normal woman (one of whose sisters has a neurotic child) and an alcoholic man of a frightfully bad strain. He deserted his wife and children. His eldest brother (the only one who grew up) was also a sot. Their father was insane (melancholic ?) and committed suicide and had an insane brother and a feeble-minded nephew, and their mother was one of three epileptic sibs and belonged to a deaf-mute strain. Despite the bad protoplasm of the father's side, in the central mating the strong germ cells of the mother result in two normal children, but the first child is neurotic and the second an epileptic at State Village. Case 1006.

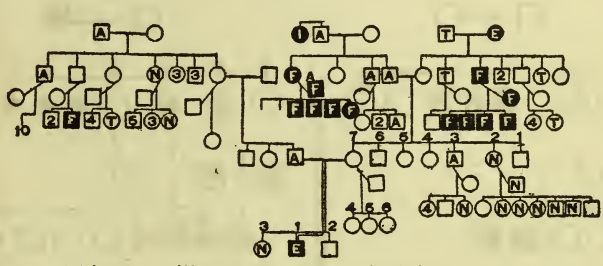

FIG. 29. This chart illustrates many principles. The central mating is that of a normal × alcoholic with one of the children normal; the other defective. There are in one branch of this family two F × F mating with eight feeble-minded children and none normal; and in the midst of this branch of the family (lower, right) is an N × N mating with five normal offspring and one (the eldest) neurotic. Case 1745.

every one shows evidence of mental weakness. In nineteen of these at least one relative is either epileptic, imbecile or insane; in five others there is migraine or other form of neurosis; in two others there have been two relatives each with paralysis; in one of the remaining two families there is an alcoholic relative and in the other one alcoholic and one criminalistic. It would seem to

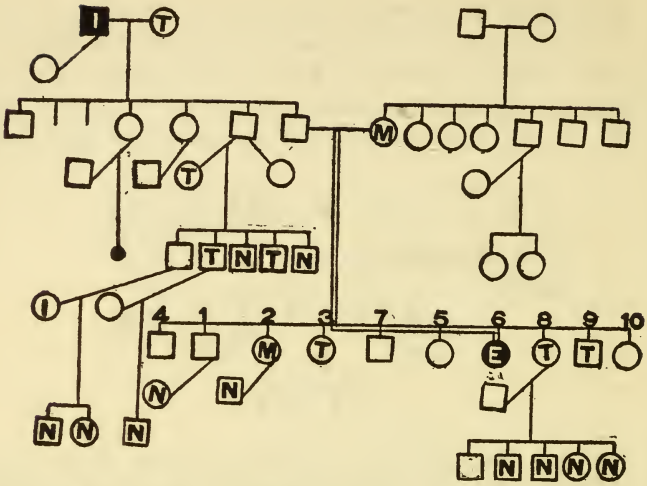

FIG. 30. The central mating is between a migrainous woman and a man who was himself, so far as known, normal but whose father showed senile dementia and whose brother was affected with vertigo. There were ten children, of whom Nos. 5, 7 and 10 died early; and little is known about No. 1. No. 4 is neurotic, No. 2 migrainous and No. 6 is epileptic and at State Village. The other three children are tubercular, two already dead before attaining the age of twenty years. Case 1149.

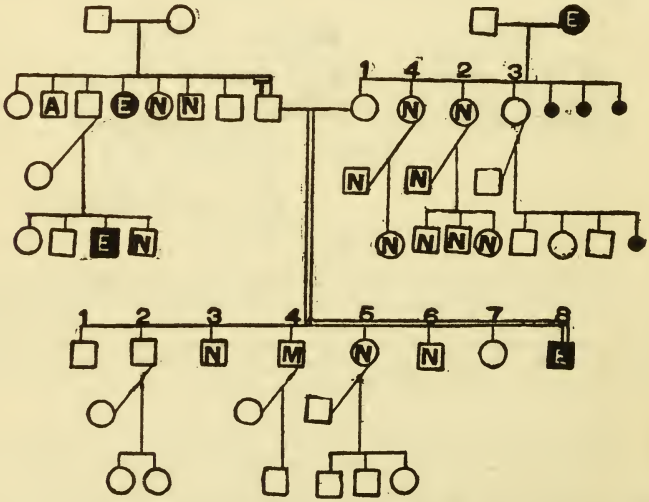

FIG. 31. Here a neurotic woman, whose mother was epileptic, marries a mentally normal but tubercular man who had an epileptic sister and nephew. Of the eight children No. 1 died at seven years, No. 2 shows defective speech, No. 4 migraine, No. 7 St. Vitus' dance, and No. 8 is an epileptic at State Village. Three children are nervously strong. Case 2673.

T HAVE PRODUCED ONE OR MORE EPILEPTICS; TOGETHER WITH HOM SOMETHING IS KNOWN.

oreic; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, de's father; fm, father's mother; go, gôitre; gp, general paralysis of mother; md, manic depressive insanity; mf, mother's father; mm, mg of the brain; sco, scoliosis; sd, senile dementia; sh, shiftless; sm nt; x, unknown; ? implies doubt; † died.

Sem	m's sibs.						Other m's relatives.					
	Total.	† early.	x	N	Ne	np	Total.	† early.	x	N	Ne	np
1	10	.....	3	7	...	...	18	.....	7	10	...	1[2]
6[3]	0	.....	...	...	...	...	16	.....	6	8	1[4]	1[5]
9	4	.....	3	...	1[6]	...	1	.....	1	...	...	...
9[7]	1	.....	1	...	...	...	30	.....	29[10]	...	...	1[7]
11	0	.....	...	...	...	...	11	.....	8	2	...	1[12]
12	9	.....	9	...	...	...	.....	.....	...	...	...	...
13	9	.....	...	9	...	...	44	4	30	8	...	2[14]
13	4	.....	4	...	...	...	10	.....	9	...	...	1[16]
14	8	.....	8	...	...	...	.....	.....	...	...	...	...
15	1	.....	1	...	...	...	.....	.....	...	...	...	...
22	4	1	...	3	...	...	11	.....	8	3	...	...
22	2	.....	...	2	...	...	25	3	12	8	2[22]	...
22	9	3	1	5	...	...	27	.....	20	6	1[24]	...
25	11	6	...	4	1[25]	...	17	7	10	...	...	...
26	10	4	3	3[28]	...	...	33	3	27	3	...	...
26	4	.....	2	...	2[31]	...	.....	.....	...	...	...	...
29	4	.....	1	3	...	...	22	.....	15	6	...	1[33]
30	3	.....	3	...	...	...	.....	.....	...	...	...	...
31	.....	.....	...	...	...	...	.....	.....	...	...	...	...
32	8	5	...	3	...	...	64	2	42	9	7[38]	4[39]
40	11	.....	...	10	...	1[40]	.....	.....	...	...	...	...
41	12	3	6	2	1[45]	...	29	4	22[45]	2	1	...
44	3	1	2	...	...	...	53	.....	52	...	...	1[48]
44	7	.....	4[51]	1	...	2[52]	5	1	3	...	...	1[52]

[24]†su. [25]sm. [26]1ch, 1hy. [27]A. [28]1bd, 1go. [29]†T. [30]†ca. [31]P.

[32]P

TABLE VII.

THE FREQUENCY OF THE DIFFERENT CLASSES OF MENTAL CONDITION IN THE CHILDREN OF PARENTS BOTH OF WHOM ARE MENTALLY NORMAL BUT HAVE PRODUCED ONE OR MORE EPILEPTICS; TOGETHER WITH THE MENTAL CONDITION OF THE GRANDPARENTS, THE PARENTS' SIBS AND OTHER BLOOD RELATIVES ABOUT WHOM SOMETHING IS KNOWN.

Abbreviations.—A, alcoholic; ap, apoplexy; B, blind; bd, affected with Bright's disease; C, criminalistic; ca, cancerous; cb, childbirth; ch, choreic; cr, cripple; D, deaf; dau, daughter; dfm, deformed; dp, dementia præcox; dt, delirium tremens; dw, dwarf; dy, dropsical; E, epileptic; ec, eccentric; en, encephalitis; F, feebleminded; f, father; ff, father's father; fm, father's mother; go, gôitre; gp, general paralysis of the insane; ht, heart disease; hy, hysteric; I, insane; id, ill defined organic disease; kd, kidney disease; la, locomotor ataxia; M, migrainous; m, mother; md, manic depressive insanity; mf, mother's father; mm, mother's mother; N, normal; Ne, neurotic; np, neuropathic; obs, obesity; P, paralytic; pa, paranoiac; pn, pneumonia; S, syphilitic; sb, softening of the brain; sco, scoliosis; sd, senile dementia; sh, shiftless; sm, simple meningitis; st, stillborn; su, suicide; Sx, unchaste; T, tuberculosis; tf, typhoid fever; tu, tumor; va, varicose veins; ve, vertigo; W, vagrant; x, unknown; ? implies doubt; † died.

Ser. No.	Children.										f	ff	fm	f's sibs.						Other f's relatives.						m	mf	mm	m's sibs.						Other m's relatives.					
	Total.	† early.	x	N	E	F	I	Ne	A	P				Total.	† early.	x	N	Ne	np	Total.	† early.	x	N	Ne	np				Total.	† early.	x	N	Ne	np	Total.	† early.	x	N	Ne	np
194a	2	.....	...	1	1	...	...	...	...	...	N	?	†P	4	.....	3	...	1^{1}	...	11	.....	9	...	...	2^{2}	N	?	?	10	.....	3	7	...	...	18	.....	7	10	...	1^{2}
643b	10	.....	3	5	2	...	...	...	...	...	?N	...	...	...	...	...	...	...	...	...	...	...	...	...	...	?N	?	$?^{3}$	0	.....	...	...	...	...	16	.....	6	8	1^{4}	1^{5}
914	8	.....	2	5	1	...	...	...	...	...	N	—	—	3	.....	3	...	...	...	6	.....	4	2	...	...	N	—	—	4	.....	3	...	1^{6}	...	1	.....	1	...	...	...
936	5	.....	1	2	1	...	...	1	...	...	N	—	—	2	.....	...	?2	...	...	9	.....	8	...	...	1^{7}	N	?N[8]	N[9]	1	.....	1	...	...	...	30	.....	29^{10}	...	...	1^{7}
1115	10	.....	4^{11}	5	1	...	...	...	...	...	N	—	—	1	.....	...	1	...	...	...	...	...	...	...	...	N	—	—	0	.....	...	...	...	...	11	.....	8	2	...	1^{12}
1261a	14	4	...	8	1	1	...	...	...	...	?N	—	—	1	.....	...	...	1^{13}	...	...	...	...	...	...	...	?N	—	—	9	.....	9	...	...	...	...	.....	...	...	...	...
1324b	6	2	...	3	1	...	...	...	...	...	N	—	—	...	...	...	...	...	...	...	...	...	...	...	...	N	N	N	9	.....	...	9	...	...	44	4	30	8	...	2^{14}
1356	6	3	1^{15}	...	1	...	...	...	1	...	?N	N	N	6	.....	...	6	...	...	15	7	1	7	...	...	?N[15]	—	—	4	.....	4	...	...	...	10	.....	9	...	...	1^{16}
1445	4	1	1	1	1	...	...	...	...	...	?N	—	—	6	.....	5	...	...	1^{17}	...	...	...	...	...	...	?N	—	—	8	.....	8	...	...	...	...	.....	...	...	...	...
1541a	8	1	...	4	1	...	...	...	1	1	N[18]	...	...	...	...	...	...	...	...	...	...	...	...	...	...	?N	.....	.....	1	.....	1	...	...	...	...	.....	...	...	...	...
2232	8	1	...	6	1	...	...	...	...	...	N	N	E	8	3	2	2	...	1^{19}	34	10	16^{20}	8	...	...	N	[21]	—	4	1	...	3	...	...	11	.....	8	3	...	...
2254	2	.....	...	1	1	...	...	...	...	...	N	—	—	5	2	...	2	1	...	6	1	...	5	...	...	N	?N	?N	2	.....	...	2	...	...	25	3	12	8	2^{22}	...
2269	14	3	...	9	1	...	...	1	...	...	N	?[23]	—	3	2	...	1	...	...	9	.....	4	5	...	...	N	—	—	9	3	1	5	...	...	27	.....	20	6	1^{24}	...
2583	1	.....	...	...	1	...	...	...	...	...	?N	—	†en	2	.....	2	...	...	...	10	3	6	...	1	...	?N	—	†tu	11	6	...	4	1^{25}	...	17	7	10	...	...	...
2627	6	1	...	2	1	...	...	2^{26}	...	...	N	—	†ap	3	1	...	2	...	...	8	.....	6	1	1^{27}	...	N	—	†P	10	4	3	3^{28}	...	...	33	3	27	3	...	...
2685	5	.....	...	3	1	...	...	1	...	...	N^{29}	—	—	2	.....	2	...	...	...	...	...	...	...	...	...	?N[30]	—	—	4	.....	2	...	2^{31}	...	...	.....	...	...	...	...
2983	7	.....	...	6	1	...	...	...	...	...	N	—	—	5	.....	3	1	1	...	16	.....	15	...	...	1^{32}	N	N	—	4	.....	1	3	...	...	22	.....	15	6	...	1^{33}
3021	10	3	2	4	1	...	...	...	...	...	N^{34}	—	—	...	...	...	...	...	...	...	...	...	...	...	...	N	—	—	3	.....	3	...	...	...	...	.....	...	...	...	...
3189b	3	.....	...	2	...	1	...	...	...	...	N	A	FA	7	5	...	...	...	2^{35}	...	...	...	...	...	...	N	.....	.....	.....	.....	...	...	...	...	.....	...	...	...	...	...
3296	2	.....	...	1	1	...	...	...	...	...	?N[36]	—	—	7	1	2	2	2^{37}	...	24	.....	22	2	...	...	N	N	N	8	5	...	3	...	...	64	2	42	9	7^{38}	4^{39}
4096b	4	1	...	2	1	...	...	...	...	...	N	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N	N	M	11	.....	...	10	...	1^{40}	...	.....	...	...	...	...
4113	3	.....	...	2	1	...	...	...	...	...	N^{41}	—	—	10	1	8	1	...	...	27	.....	21^{42}	5	1^{43}	...	N^{44}	N^{44}	M	12	3	6	2	1^{45}	...	29	4	22^{46}	2	1	...
4413	7	1	...	5	1	...	...	...	...	...	N	—	—	11	8	2	...	...	...	1^{47}	.....	...	...	...	...	N	A	—	3	1	2	...	...	...	53	.....	52	...	...	1^{48}
4489	5	.....	...	4	1	...	...	...	...	...	N	—	—	6	.....	1	4	...	1^{49}	26	.....	19	6	1^{50}	...	?N	—	—	7	.....	4^{51}	1	...	2^{52}	5	1	3	...	...	1^{52}

[1]ch. [2]F. [3]Sx. [4]A. [5]E. [6]A. [7]I. [8]†ca. [9]†kd. [10]1†P, 1sco. [11]clubfoot. [12]E. [13]Sx. [14]E. [15]†bd. [16]F. [17]F. [18]†T. [19]E. [20]1†ca. [21]sd. [22]†P [23]†ca. [24]†su. [25]sm. [26]1ch, 1hy. [27]A. [28]1bd, 1go. [29]†T. [30]†ca. [31]P. [32]F, su, Sx. [33]E. [34]†bd. [35]E. [36]†T. [37]A. [38]6P, 1A. [39]3E, 1F. [40]E. [41]†ca. [42]1†ca. [43]A. [44]†T. [45]M. [46]4†T. [47]E. [48]I. [49]E. [50]A. [51]3†T. [52]F.

be rare that a person of mentally strong strain, even if mated to a "tainted" person, should have an epileptic child. The normal parent of an epileptic usually has some defective germ cells.

TABLE C.

SHOWING THE DISTRIBUTION OF THE TAINTED RELATIVES OF A NORMAL PARENT OF EPILEPTICS INTO THE VARIOUS CLASSES OF MENTAL CONDITION.

Ser. No.	Tainted parent.	Total known relatives	E	F	I	M and Ne	A	P	Sx	ve	su	ch	C
94	f	6	....	....	....	.....	....	2	...	...	...	...	..
306	m	3	....	....	....	.....	....	2	...	...	...	...	..
1149	f	2	....	....	1	.....	....	....	...	1	...	...	..
1435	f	7	1	....	....	.....	....	1	...	...	...	...	..
194b	m	18	....	1	....	.....	....	....	...	...	...	...	..
145	m	7	2	1	....	.....	....	1	...	...	...	...	..
332	m	15	1	3	....	.....	....	....	...	...	...	...	..
346a	f	8	....	....	4	.....	....	....	...	...	1	...	..
1451	f	5	....	1	1	.....	....	....	...	...	...	...	..
2375	f	4	1	....	....	.....	....	3	...	...	...	...	..
503, 3781 } b	.....	68	3	1	2	12	....	....	...	...	...	...	..
314b	m	9	1	1	....	.....	....	2	...	...	...	...	..
1704	m	19	2	....	....	2	....	....	...	...	...	...	..
2557	f	5	....	....	....	.....	1	....	...	...	...	...	..
83	f	6	....	....	1	.....	....	1	...	...	...	...	..
1475	f	12	....	....	....	1	....	1	...	...	...	...	..
483	m	16	....	1	....	1	....	1	...	...	...	...	..
971	m	15	....	....	1	2	....	....	...	...	...	...	..
1006	m	12	....	....	....	3	....	....	...	...	...	...	..
1044	m	9	....	....	....	1	....	....	...	...	...	1	..
1745	m	10	....	4	....	3	1	..	...	...	...	...	..
2193	m	16	....	....	1	3	1	....	...	...	...	...	..
2431	m	10	....	2	....	1	1	....	...	...	...	...	..
2892	m	14	....	....	....	2	....	....	...	...	...	...	1
3274	m	2	....	....	....	.....	1	....	...	...	...	...	..
3772	m	13	....	....	....	1	1	....	...	...	...	...	..
4276	m	6	....	1	....	.....	....	....	...	...	...	...	..
4475a	m	5	1	....	....	4	....	....	...	...	...	...	..

Table VII shows the proportions of the various mental conditions occurring among the offspring of two normal parents *in those families that have epileptic children.* This table is of great theoretical interest. If our hypothesis that ordinary epilepsy is due to the absence of a character is correct then if the normal parents produced all germ cells with the character all offspring should have the character. The fact that some offspring are defective is explained on Mendelian grounds on the assumption that both parents though somatically normal, have one half their germ cells defective. What evidence is there of the application of Mendelian expectation to this case? There are 24 matings

of normal × normal (Figs. 32, 33). If we exclude from consideration all parents of whose relatives nothing is known or who have indeed fewer than 4 relatives of whose health something is known 33 parents remain (including 8 with fewer than 4 known

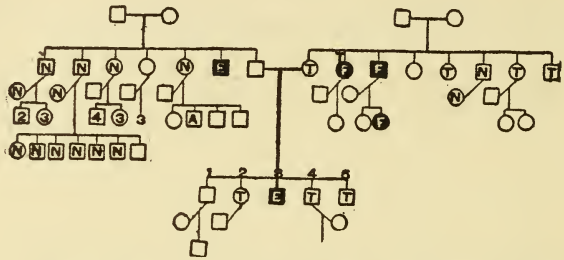

FIG. 32. Two apparently normal parents (each with defective sibs) have five children, of whom one is epileptic. Case 4489.

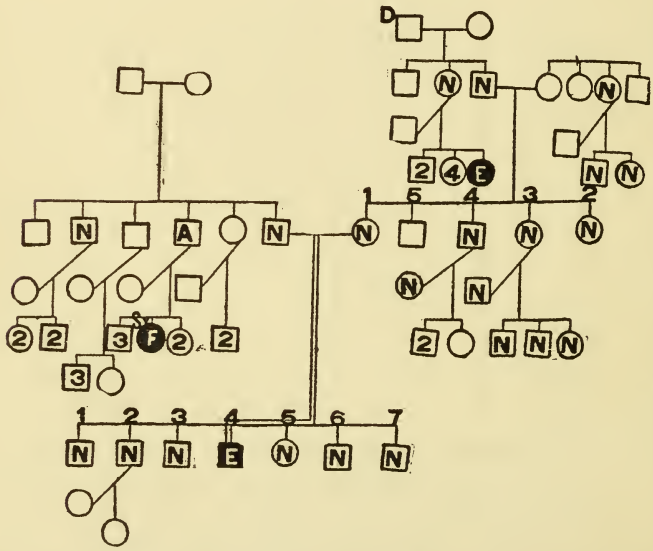

FIG. 33. Two normal parents, father with a feeble-minded niece, mother with an epileptic first cousin, have seven children, of whom all are normal save one epileptic at State Village. Case 2983.

relatives, but with one defective, Table D). Of these 33 parents only three show no weakness of the 10 enumerated classes (epileptic, feeble-minded, insane, migrainous and neurotic, alcoholic, paralytic, sex offending, choreic, suicidal, criminal). Twenty of

the 33 parents have relatives with admitted epilepsy, imbecility or insanity. Of the three excepted parents one has a brother who died at 35 years of meningitis and one has a brother who died of encephalitis and a sister with goitre. Since only two tenths of one per cent. of the population at large is epileptic the fact that

TABLE D.

CLASSIFYING THE DEFECTIVE AND TAINTED RELATIVES OF TWO NORMAL PARENTS WHO HAVE EPILEPTIC CHILDREN.

		Total Known Relatives.	E	F	I	M and Ne	A	P	Sx	ch	su	
194a	F	4	....	2	....	....	....	....	....	1	...	.....
194a	M	18	....	1	....	.....	....	....	....	....	...	.....
643b	M	11	1	....	....	.....	1	....	1	....	...	.....
914	M	6	....	....	....	.....	1	....	....	....	...	.....
936	F	4	....	....	1	.....	....	....	....	....	...	.....
936	M	6	....	....	1	.....	....	....	....	....	...	.....
1115	M	4	1	....	....	.....	....	....	....	....	...	.....
1324	M	20	2	....	....	.....	....	....	....	....	...	.....
1356	F	16	....	....	....	.....	....	....	....	....	...	all N
1356	M	1	....	1	....	.....	....	....	....	....	...	.....
1445	F	2	....	1	....	.....	....	....	....	....	...	.....
2232	F	6	2	....	....	.....	....	....	....	....	...	.....
2232	M	7	....	....	1	.....	....	....	....	....	...	.....
2254	F	8	....	....	....	1	....	....	....	....	...	.....
2254	M	14	....	....	....	.....	....	1	....	....	...	.....
2269	M	12	....	....	....	....	....	....	....	....	1	.....
2583	F	3	....	....	....	1 ..	....	....	....	....	...	.....
2583	M	5	....	....	....	.....	....	....	....	....	...	1†sm
2627	F	1	....	....	....	.....	1	....	....	....	...	.....
2627	M	6	....	....	....	.....	....	....	....	....	...	1†enc.
2685	M	2	....	....	....	.....	....	2	....	....	...	.....
2984	F	3	....	1	....	.....	....	....	....	....	...	.....
2984	M	10	1	....	....	.....	....	....	....	....	...	.....
3182	F	4	2	1	....	.....	....	....	....	....	...	.....
3296	F	6	....	....	....	.....	2	....	....	....	...	.....
3296	M	14	3	1	....	.....	1	6	....	....	...	.....
4096	M	11	1	....	....	.....	....	....	....	....	...	.....
4113	F	7	....	....	....	.....	1	....	....	....	...	.....
4113	M	6	....	....	....	2	....	....	....	....	...	.....
4413	F	1	1	....	....	.....	....	....	....	....	...	.....
4413	M	1	....	....	1	.....	....	....	....	....	...	.....
4489	F	12	1	....	....	.....	1	....	....	....	...	.....
4489	M	4	....	3	....	.....	....	....	....	....	...	.....
335 parents	....	235	15	11	4	4	8	9	1	1	1	.....

1.5 per cent. of the known relatives of the normal parents of epileptics are epileptic shows that these normal parents do not belong to normal strains. All facts speak for the conclusion that, possibly with the exception of the father of case 1356, all parents of epileptics in Table D belong to neuropathic strains; and warrant

the hypothesis that, apart possibly from traumatic causes, epilepsy rarely, if ever, arises from strains devoid of defective germ plasm.

Does epilepsy ever arise in a stock devoid of neuropathic taint? It is generally held that epilepsy is a "complex"; that its causes are varied; that its forms are diverse. The most progressive students of epilepsy might even maintain that there is just as much difference between one form of "epilepsy" and another as between "cancer" and a boil. However useful such an analysis may be for some purposes it appears that for the question of inheritance of the great majority of cases that get into an institution it has little importance. The various common types of epilepsy behave as though they were alike in lacking some element necessary for complete mental development; and they behave alike when mated with normal individuals with defect "in the blood." A "defective" protoplasm (of whatever origin and however it is to be interpreted) acts like the absence of something, and the various forms of defect are, within limits, mutually replaceable. For practical purposes a "neuropathic taint" may be recognized as though it were an inheritable unit.

But how about traumatic epilepsy? Is that inherited like other forms? More recent experiments have not confirmed the results of Brown-Séquard who asserted the inheritance of acquired epilepsy in guinea pigs. Do our pedigrees reveal any case of non-inheritable epilepsy or other evidence that epilepsy may occur in a stock devoid of neuropathic taint? We can only say that, in the limited material at our disposal, there is no epileptic parent that transmits like a normal; and only one case of an epileptic child from a family (of significant size) that shows no evidence of a neuropathic taint. This does not question the fact of traumatic epilepsy. It merely indicates its relative infrequency.

Finally, the social bearing of the facts of inheritance of epilepsy must be considered.

First. Is there evidence that alcoholism is a cause of epilepsy and other defectiveness? There is no doubt about its association with defectiveness; the doubt is whether alcoholism may not be a symptom—evidence of such a mental weakness as cannot resist the temptation of alcohol. A criterion may be found in the outcome of such matings as we have tabulated. If alcoholism is merely a symptom like chorea and if it is evidence of a simplex mental condition, then results of matings should show, undis-

turbed, the expected proportions; but if, on the other hand, alcoholism is a cause of defective offspring then the proportion of defective offspring should exceed expectation. We do not pretend to have sufficient data, and data of the right sort, to settle this question; but what we have is sufficient to give some support to one hypothesis or the other. In Table II we find a great preponderance of defective offspring—87 per cent., instead of the expected 50 per cent. In Table V the matings of alcoholics with other "tainted" consorts yield 23 defectives in 71, or 32 per cent. instead of 25 per cent. The two fraternities from two alcoholic parents give, together, 25 per cent. epileptic and the same of neurotic offspring. In the alcoholic × normal matings of Table VI, where only 25 per cent. defectives are to be expected, actually 29 out of 80, or 36 per cent. are defective. We see, accordingly, a constant excess beyond expectation of epileptic and feeble-minded offspring from alcoholic parents. In so far our results support the view that alcoholism, to a certain extent, is a cause of defect; that 10 or 20 per cent. more children in any fraternity are defective than would be were it not for alcohol. However, a word of caution must be added. It is not improbable that some of the alcoholics are actually feeble-minded and any such would tend to increase the average of defective offspring because of their inherent defective germ cells and quite apart from any poisoning effect on the germ cells of alcohol. The hypothesis that alcohol is a "race poison" deserves more critical, especially experimental, study on the lower animals.

Second. Have we any reason for believing in an increase in the proportion of epilepsy to the population at large? Certainly the care of epileptics is an increasing burden to the state; but it is obvious that that is largely because the class is better cared for by the state.

To answer the question completely for any state like New Jersey we should find the proportion of epileptics in the population born between 1870 and 1900 and compare it with the proportion of epileptics in the population born between 1840 and 1870. No census adequate to give these proportions has been made. An approximation to the required comparison would be furnished if we had a *random* sample of the population of each of the two epochs and knew the proportion of epileptics in each sample; but we cannot, as yet, meet that condition. The best thing we can

do is to compare the proportion of epileptics in a collection of families in the latest generation (selected in nearly all cases because they have at least one epileptic in the fraternity) with their paternal and maternal fraternities (selected insofar as parents, uncles and aunts of an epileptic fraternity usually comprise at least one epileptic). The required result is easily got from the tables. It appears that of 1,020 persons belonging to the parental generation 124 or 12.2 per cent. are epileptic or imbecile; while of the 739 persons in the following or filial generation 270 or 36.5 per cent. are epileptic or imbecile. It might be concluded, in other words, that, given an ancestry such as is producing defectives, it tends to produce offspring with three times the proportion of defectives that it has itself. Such a conclusion would be unwarranted. For in the same generation with the affected fraternity are other fraternities of cousins none of whom contain defective children; it is certain that if these unaffected fraternities were included they would much reduce the proportion of defectives in the younger generation. We have calculated the proportion of epileptic and imbecile children to all children in the later generation and compared it with the ratio of the generation to which the parents belong. In the earlier generation the relation is 159 defectives out of 1,354 children; in the later generation, 366 out of 1,460. Or the ratios are, respectively, 11.7 per cent. and 25.1 per cent. That is, the proportion of defectives in the younger generation is more than double that of the earlier. Making a slight allowance for the possibility that the defects of some of the parental generation have been concealed (and this, on account of the inaccessibility of the parental generation the field worker can not always check) it is probable that the proportion of defectives in the population we are studying doubles in each generation and is now 1 in each fraternity of 4! Were the population to mate in the future about as in the past it is easy to see that, in half a century, on the average over half of each fraternity of the epileptic-producing population would be defective.

Of course, the families constitute a small, selected portion of the population of New Jersey. Probably the total number of persons now living in New Jersey whose mental condition is adequately described in our data is not over 2,500 or 1 to 1,000 of the total population of the state. Our strains, then, constitute an unimportant part of the population. Is there any reason to sup-

pose that the families of such strains as we have studied are increasing faster than the population at large? We do not know the average size of fraternities in New Jersey. The census determination of "size of private family" is 4.4 for the state, which would allow for 2 parents and 2.4 children; but this gives a very imperfect idea of the size of fraternities, because only children at home are considered in the family, incomplete fraternities are averaged with those fully finished, and there are other objections that will readily occur to anyone. We would perhaps do better to compare the size of our fraternities with those of a high social status like those of Harvard graduates which average slightly less than two children. For the better educated, more effective, and mentally most advanced part of our eastern population the average number of children of a pair of parents is probably between three and four. What is it in our special population? A count was made of 108 fraternities taken at random—the first 108 in the series fulfilling the following conditions: The members of the fraternity were born (as far as it was possible to select them) between 1860 and 1900, ensuring the completion of the family and at the same time bringing the families as close as possible to the present. However, as was inevitable, some of the families belong to an earlier decade (of the seventies or eighties), when the number of children in a family was larger than now. The average size of the fraternities counted is close to 5, and the average number of the members surviving to maturity was about four. All in all, the result indicates that the fraternities in the strains to which epileptics belong are not very different in size from those of the population at large. Even in the matings of two feeble-minded persons the average number of offspring of a single mating is only 4.4, but the total fecundity of the mothers averages slightly higher than that.

All fraternities with feeble-minded mothers yield an average of 6 (6.05) children born. The average fecundity of the mothers is (on account of double matings) somewhat greater than this. All fraternities with epileptic mothers yield an average of 6 (6.04) children born. We have calculated the average number of children born to families with "normal" mothers as taken from the tables. These are not always the latest complete generation but this is usually the case. Here we get again the figure 6 (6.06). There is thus a surprising agreement in the size of fraternities

derived from the epileptic, feeble-minded and normal mothers of our families. The greater size of these principal fraternities (i. e., containing the patient whose pedigree is being investigated) as compared with the collateral fraternities, that gave an average size of 5, is probably due to the fact that the principal fraternity is more fully known; in the collateral fraternities some children have not been recorded.

The upshot of these counts is that they afford no evidence that the families containing defectives are exceptionally large, any larger than other families. It is probable that the increase in such families is nearly the same as the population in general.

It appears then that, while as matings are at present made epilepsy tends in successive generations to form a larger part of the population, this process has not, until recently at any rate, been furthered by a relative increase in the number of individuals belonging to the defective strains—but by a higher incidence—a greater density—of defect inside such strains. If our data should hold generally for strains with epileptic members we could conclude that, if no change in mating and fecundity occur, the number of epileptics and feeble-minded in the state of New Jersey will be relatively double what it is now in 1940, and relatively four times as common in 1970. Thus if the present proportion is 1 to 500 it would be 1 to 125 in 1970.

What measures are recommended to stop this increase? The most effective, violating least the social ideals of our time, is the segregation during the entire reproductive period—(say from 15 to 45 years of age) of epileptics of both sexes. Such measures would be an expensive burden for the present generation of taxpayers; but if it is ever justifiable to bond a state it is for such a purpose as this; because inside of ten years the stream of defective children would be almost dry. By twenty years half of the temporary detention-sanatoria for defectives could be closed, and by thirty years the expense of maintenance would probably be less than it is now. By forty years an institution like that at Skillman would probably provide ample accommodation for all the remaining defectives (now grown quite gray) and in fifty years there would remain only an old man's and old women's home for such as did not care to leave its shelter to return to their relatives. By this time the State could pay off its bonds from the sale of most of the land reserved for these unfortunates. Of course,

through immigration, through trauma, and through the chance union of defective germ cells of normal persons a thin stream would be maintained, but the State would have control of the situation and the expense would be ever diminishing instead, as now, ever increasing.

SUMMARY

1. The method of field-study of epileptic families combined with the modern biological methods of analysis of hereditary data constitute a vastly improved means of inquiry into inheritance of epilepsy.

2. Epilepsy and feeble-mindedness show a great similarity of behavior in heredity supporting the hypothesis that each is due to the absence of a protoplasmic factor that determines complete nervous development.

3. When both parents are either epileptic or feeble-minded all their offspring are so likewise.

4. The conditions named migraine, chorea, paralysis, and extreme nervousness behave as though due to a simplex condition of the protoplasmic factor that conditions complete nervous development; i. e., persons belonging to these classes usually carry some wholly defective germ cells. Such persons may be called "tainted."

5. When such a tainted individual is mated to a defective about one half of the offspring are defective.

6. When a simplex normal is mated with a defective about half the offspring are normal; the others defective or neurotic.

7. When both parents are simplex in nervous development and "tainted" about one quarter (actually 30 per cent.) are defective.

8. The proportion of tainted offspring is not noticeably higher when both parents show the same nervous defect.

9. Normal parents that have epileptic offspring usually show gross nervous defect in their close relatives.

10. While we recognize that "epilepsy" is a complex, yet there is a classical type numerically so preponderant that, in the mass, "epilepsy" acts like a unit defect.

11. Our data point to a poisoning in slight degree of germ cells by alcohol, but the evidence is hardly crucial.

12. There is evidence that in epileptic strains the proportion

of epileptic children in the latest complete generation is double that of the preceding; but there is no evidence that in these epileptic strains the average number of children in a fraternity is greater than in the population at large. Provided marriage matings continue as at present and no additional restraint is imposed the proportion of epileptics in New Jersey would double every thirty years.

13. The most effective mode of preventing the increase of epileptics that society would probably countenance is the segregation during the reproductive period of all epileptics.

American Breeders' Association — Eugenics Section

DAVID STARR JORDAN, Chairman. C. B. DAVENPORT, Secretary

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PUBLICATIONS

BULLETIN No. 1. Heredity of Feeblemindedness. H. H. Goddard. April, 1911. (Out of print.)

BULLETIN No. 2. The Study of Human Heredity. C. B. Davenport, H. H. Laughlin, David F. Weeks, E. R. Johnstone, Henry H. Goddard. May, 1911. . . . . 10 Cents.

BULLETIN No. 3. Preliminary Report of a Study of He.edity in Insanity in the Light of the Mendelian Laws. Gertrude L. Cannon and A. J. Rosanoff. May, 1911. . . . . 10 Cents.

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BULLETIN No. 5

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BY

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From the earliest times physicians have recorded observations of the transmission of nervous diseases by heredity.

In modern times the accumulation of large amounts of material in the shape of clinical statistics published by hospitals has established beyond question the fact that heredity plays an essential part in the etiology of certain neuropathic conditions. Table I shows some statistical figures selected at random.

TABLE I.

	Total number of cases with known histories.	Cases showing heredity.	
		Number.	Per cent.
Report of New York State Commission in Lunacy for the year ending September 30, 1909.....	2,467	1,259	51.0
Report of Michigan Asylum for the Insane, at Kalamazoo, for the years 1859–1908.....	8,531	4,800	56.3
Report of Rhode Island State Hospital for the Insane for the year ending December 31, 1910.....	250	137	54.8

Figures such as these are for all forms of insanity, including those which occur on a basis of exogenous causes; yet even as they are, their significance becomes quite apparent when they are compared with figures representing the frequency of a neuropathic family history among normal subjects: 3 per cent according to Jost, 7.5 per cent according to Näcke.[1]

Aside from statistical data, studies of individual cases have revealed, on the one hand, the facts of atavistic and collateral heredity, and on the other hand, the fact of the frequent failure of transmission of neuropathic traits. In other words, there

[1] Cited by Kraepelin, *Psychiatrie,* 7th ed., Vol. I, p. 116.

seemed to be no regularity in the working of heredity, and the generally accepted conclusion on the subject has been well voiced by Kraepelin: "We must therefore regard the statistics of heredity in insanity merely as facts of experience without finding in them the expression of a 'law' which should hold in every case."[2]

In recent years, however, it has been shown that human heredity, at least as far as certain traits are concerned, is subject to general biological laws. Special mention may be made of color of eyes,[3] color of hair,[4] form of hair,[5] brachydactyly,[6] some forms of cataract,[7] and retinitis pigmentosa,[8] as human traits which have been shown to be transmitted from generation to generation in accordance with the Mendelian theory.

As regards insanity and allied neuropathic conditions, the facts to which we have already referred, namely, the facts of atavistic and collateral heredity, direct heredity, and the frequent failure of transmission seem to point plainly to alternative inheritance. This suggests the likelihood of a mechanism of inheritance according with the Mendelian theory, and the present study has been undertaken with a view to determining whether indeed the neuropathic constitution is transmitted in the manner of a Mendelian trait.

§ 1. The Mendelian Theory.[9]

Perhaps a brief statement of the Mendelian theory will not be out of place here.

The total inheritance of an individual is divisible into unit characters, each of which is, as a general rule, inherited independently of all other characters and may therefore be studied without reference to them.

[2] *Loc. cit.*

[3] Davenport, *Science,* N. S., Vol. XXVI, Nov. 1, 1907. Hurst, *Proc Roy. Soc.,* Vol. LXXX B., 1908.

[4] Davenport, *The Amer. Naturalist,* Vol. XLIII, Apr., 1909.

[5] Davenport, *Loc. cit.,* Vol. XLII, May, 1908.

[6] Farabee, *Papers of Peabody Museum,* III, 3, 1905.

[7] Nettleship, *Rep. Roy. London Ophth. Hosp.,* XVI, 1905.

[8] Nettleship, *Loc. cit.,* XVII, Parts I, II, and III.

[9] This section is for the most part reprinted from the Preliminary Report made shortly after the present study was begun. (Cannon and Rosanoff, *Jour. of Nerv. and Ment. Disease,* May, 1911.)

The inheritance of any such character is believed to be dependent upon the presence in the germ plasm of a unit of substance called a *determiner.*

With reference to any given character the condition in an individual may be *dominant* or *recessive*: the character is dominant when, depending upon the presence of its determiner in the germ plasm, it is plainly manifest; and it is recessive when, owing to the lack of its determiner in the germ plasm, it is not present in the individual under consideration.

The dominant and recessive conditions of a character are designated by the symbols D and R respectively.

Thus in the case of eye color the brown color is the dominant condition and the blue color is the recessive condition. In other words, the inheritance of brown eyes is due to the presence in the germ plasm of a determiner upon which the formation of brown pigment in the anterior layers of the irides depends, while the inheritance of blue eyes is due to the lack of determiner for brown pigment in the germ plasm, for the blue color of eyes is due merely to the absence of brown pigment, the effect of blue being produced by the choroid coat shining through the opalescent but pigment-free anterior layers of the irides in such cases.

It is obvious that as regards any character an individual may inherit from both parents—*duplex inheritance,* designated by the symbol DD,—or from one parent only—*simplex inheritance,* designated by the symbol DR,—or he may fail to inherit from either parent—*nulliplex inheritance,* designated by the symbol RR; in the last case the individual will exhibit the recessive condition.

We are now in a position to estimate the relative number of each type of offspring according to theoretical expectation in the case of any combination of mates.

There are but six theoretically possible combinations of mates. Continuing to make use of eye color as an instance of a Mendelian character, let us consider in turn each theoretical possibility.

1. Both parents blue-eyed (nulliplex): all the children will be blue-eyed, as may be shown by the following biological formula:

$$RR \times RR \infty RR.$$

2. One parent brown-eyed and simplex (that is to say inheriting the determiner for brown-eye pigment from one grandparent only), the other blue-eyed: one-half of the children will be brown-eyed and simplex and the other half blue-eyed:

$$DR \times RR \infty DR + RR.$$

3. One parent brown-eyed and duplex, the other blue-eyed: all the children will be brown-eyed and simplex:

$$DD \times RR \infty DR.$$

4. Both parents brown-eyed and simplex: one-fourth of the children will be brown-eyed and duplex, one-half will be brown-eyed and simplex, and the remaining one-fourth will be blue-eyed (nulliplex):

$$DR \times DR \infty DD + 2DR + RR.$$

5. Both parents brown-eyed, one duplex the other simplex: all the children will be brown-eyed, half duplex and half simplex:

$$DD \times DR \infty DD + DR.$$

6. Both parents brown-eyed and duplex: all the children will be brown-eyed and duplex:

$$DD \times DD \infty DD.$$

It will be seen from these formulæ that in attempting to predict the various types of offspring that may result from a given mating it is necessary to know not only whether the character is in each parent dominant or recessive, but in the case of the dominant condition also whether it is duplex or simplex.

Turning again to the example of eye color, a blue-eyed individual we know to be nulliplex, as he has no brown pigment in his eyes and therefore could not have inherited the determiner for brown-eye pigment from either parent. But how are we to judge in the case of a brown-eyed person whether he has inherited the determiner for that character from both parents or only from one? We can judge this only by considering the ancestry and offspring of the individual.

To put the whole matter in a nutshell, the essential difference between the dominant and the recessive conditions of a character lies in the fact that in a case of simplex inheritance the dominant condition is plainly manifest, while the recessive condition is not apparent and can be known to exist only through a study of ancestry and offspring.

This is important because it constitutes the criterion which enables us to determine whether any given inherited peculiarity or abnormality is, as compared with the average or normal condition, dominant or recessive.

§ 2. Description of Material.

The total amount of psychiatric material which is available at this hospital is very large. We found, however, that for various reasons, to be spoken of presently, the greater part of the material could not be utilized in our study.

In selecting cases our aim has been to exclude all those forms of insanity in the causation of which exogenous factors, such as traumata, alcoholism, and syphilis, are known to play an essential part; and we have also systematically excluded psychoses which occur upon a basis of organic cerebral affections, such as tumors, arteriosclerosis, apoplexy, and the like. We are not inclined to dispute the possible influence of heredity in these conditions; we have excluded them merely for the purpose of simplifying our problem by avoiding the necessity of dealing with a complicating factor in the shape of an essential exogenous cause. Moreover there seemed to be reason to believe that the so-called functional psychoses and neuroses are more closely related to each other than to the conditions which we have sought to exclude; and since our material had to be largely massed together for statistical treatment it was important that it should be as homogeneous as possible.

More than half the patients at this hospital are either themselves foreign born or the children of foreign-born parents; and among those who were born in this country of American parents there are many whose homes are in distant states; thus but a small proportion remained whose families had for two or three generations resided in this country and were accessible to investigation.

Other difficulties in obtaining our data were due to the ignorance of some of our informants or to their reluctance or refusal to co-operate in the investigation; and in many cases the investigation had to be discontinued and the data already collected had to be discarded owing to incompleteness.

In the actual analysis of the data collected in the course of our investigation the problem in each case was to distinguish, on the

basis of the information obtained by questioning the relatives, neuropathic states from the normal state and in the case of a neuropathic state to identify, if possible, the special variety. Such diagnosis often enough presents great difficulty when there is opportunity for direct observation, but when it has to be based upon observations of untrained informants related from memory the difficulty is, of course, greatly increased and with it the chance of error. We have endeavored to reduce the amount of error from this source by interviewing personally as many as possible of the nearest relatives of the patients whose pedigrees were being investigated, and by the practice of tracing almost all the families not farther than to the generation of grandparents, for the farther back our inquiries extended the more scant and more vague was the information which we were able to obtain.

To the difficulty of diagnosis is added the further difficulty which results from the impossibility in the present state of psychiatry of precisely delimiting the conception of the neuropathic constitution. To this matter we shall have occasion to revert in subsequent sections.

In the analysis of data it was often necessary in the case of a normal subject to determine whether the case was one of duplex or of simplex inheritance, it having appeared early in the course of our study that the normal condition was dominant over the neuropathic condition. The fact of simplex inheritance we were able in some cases to establish on the basis of the existence of neuropathic manifestations in the ancestors or collateral relatives of the subject; in other cases this evidence was lacking as our information did not extend to the more remote generations, so that it was necessary to *assume* the fact of simplex inheritance on the basis of the existence of neuropathic offspring: the two types of material have been treated separately. On the other hand, the fact of duplex inheritance was in every case based upon the absence of neuropathic manifestations in ancestors and collateral relatives, as far as known, as well as in the offspring;—but inasmuch as in scarcely any case was the family history traced farther back than the third generation it is clear that the possibility of simplex inheritance was in no case positively excluded; we have here, therefore, another source of error which, fortunately, is slight, and affects the least important part of our mate-

rial, namely, the cases of matings from which no neuropathic offspring have resulted.

On the whole, no pretension is made here of total elimination of error; but we believe that whatever errors remain they are not sufficient to invalidate the material as a basis for our study.

§ 3. Statistical Analysis of Material.

In the Preliminary Report, to which we have already referred and which was based upon an analysis of the pedigrees of twelve families, it was shown that the neuropathic constitution is transmitted by heredity probably in the manner of a trait which is, in the Mendelian sense, recessive to the normal condition.

Sixty other families have since been investigated; the entire material now includes the pedigrees of seventy-two families, representing two hundred and six different matings, with a total of one thousand and ninety-seven offspring. In Table II this mass of data has been arranged so as to show the proportions of normal and neuropathic offspring which resulted from the various types of mating alongside of figures representing theoretical expectation according to the Mendelian theory.

TABLE II.

Types of mating.	Number of matings.	Total number of offspring.	Died in childhood.	Data unascertained.	Neuropathic offspring.		Normal offspring.	
					Actual findings.	Theoretical expectation.	Actual findings.	Theoretical expectation.
a. RR × RR ∞ RR.....	17	75	11	0	54	64	10	0
b. DR × RR ∞ DR + RR.....	37	216	46	1	84	84½	85	84½
b_1. " " "	56	284	20	4	106	130	154	130
c. DD × RR ∞ DR.....	14	61	13	3	0	0	45	45
d. DR × DR ∞ DD + 2DR + RR	7	34	5	0	8	7¼	21	21¾
d_1. " " " "	55	335	39	3	99	73¼	194	219¾
e. DD × DR ∞ DD + DR.....	20	92	12	3	0	0	77	77
f. DD × DD ∞ DD.....	0	0	0	0	0	0	0	0
Totals.....	206	1,097	146	14	351	359	586	578

Some of the data represented in the table require special explanation.

Among the offspring which resulted from matings of the first type, RR × RR, ten are recorded as being normal, although

theoretically all should be neuropathic. Of these ten one died at the age of thirty-eight years in an accident, during life suffered from asthma, had a son who died in convulsions; another is described as being easy going, is somewhat odd and possibly abnormal in make-up, is twenty-nine years of age; the rest are from eight to twenty-two years of age. In other words, in two of the ten subjects the neuropathic constitution is not positively excluded and the remaining eight have not reached the age of incidence.

The matings of the second and fourth types, DR × RR and DR × DR respectively, have been divided into two groups each, as already explained in the preceding section: thus groups *b* and *d* in the chart include the matings in which the simplex condition of either or both mates, as the case may be, is definitely ascertained, the existence of neuropathic manifestations either in ancestors or in collateral relatives of the subjects appearing in the pedigrees; groups b_1 and d_1, on the other hand, include the matings in which the simplex condition of either or both mates is assumed to exist on the basis of the character of the offspring. It is perhaps not surprising that groups b_1 and d_1 are larger than *b* and *d* respectively when we consider the great likelihood of a neuropathic taint, derived from an ancestor of a remote generation, being transmitted many times in the shape of a simplex condition, and at the same time the fact that our investigations extended in almost all cases no farther back than the generation of grandparents.

As is shown in the table the correspondence between theoretical expectation and actual findings is in some cases exact and in all cases remarkably close. *It would seem, then, that the fact of the hereditary transmission of the neuropathic constitution as a recessive trait, in accordance with the Mendelian theory, may be regarded as definitely established.*

The material represented in the table appears elsewhere in this paper in the shape of pedigree charts with detailed references to all neuropathic individuals. Among the subjects who have been counted as neuropathic were, on the one hand, those who were recognized as insane, epileptic, hysterical, or feeble-minded, and on the other hand, those who presented anomalies of conduct or disposition which were even in the conservative judgment of our

lay informants related to the neuropathic conditions. At the same time we have counted as normal all cases of mental or nervous disturbance resulting from arteriosclerotic disease with strokes, paralyses, aphasias, etc.

§ 4. Dissimilar Heredity. Degrees of Recessiveness.

Heretofore we have dealt with the neuropathic constitution as a unit, comparing it with the normal condition. The great variety of neuropathic manifestations and the facts of dissimilar heredity show, however, that the neuropathic constitution in reality consists of a series of entities which are distinct, at least from the standpoint of clinical definition, though at the same time evidently in some manner related to each other.

The phenomenon of dissimilar heredity has, indeed, in the opinion of some cast a doubt upon the validity of conclusions which are in part based upon the assumption of the existence of an essential relationship between the most diverse clinical neuropathic manifestations. It must be admitted that the burden of proof rests upon those who assume that imbecility, epilepsy, deteriorating psychoses, periodic psychoses, paranoic conditions, involutional psychoses, the slighter psychopathic states, and certain eccentricities are all etiologically related. It is for them to explain why the neuropathic constitution leads in some cases to death from convulsions in early childhood, and in others to but a transitory depression at the involutional period, the subject being at least approximately normal during the greater part of his life. It is for them to explain why in some cases there is profound congenital mental defect, in others a dementing process coming on in early adult life, in still others recurrent but non-dementing insanity, and in others again a mere predisposition to mental disturbance which for many years remains latent and is brought to light only through the operation of some external cause.

Some parts of our material seem to throw some light upon the nature of the relationship which exists between various neuropathic manifestations. Thus the pedigree charts of at least four families point to the existence of *different degrees of recessiveness.* In other words, certain neuropathic conditions, though clearly recessive as compared with the normal condition, are at the same time dominant over other neuropathic conditions which

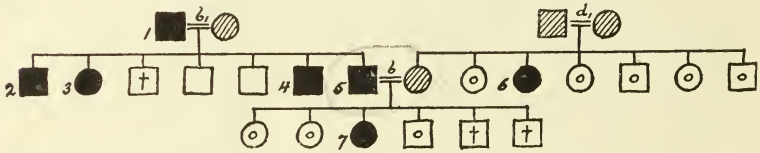
are, so to speak, of a more pronounced degree of recessiveness. It appears in a most marked way that recoverable psychoses are dominant over epilepsy and allied conditions.

It seems necessary to assume that the normal development and function of the nervous system is dependent not upon a single unit determiner in the germ plasm, but upon a group of determiners, and that the number of units lacking from that group determines the special type of defect to be observed clinically. It may be recalled that a similar assumption has been found necessary for the understanding of the inheritance of other Mendelian characters, notably various shades of skin pigmentation.[10]

For convenience in presentation conditions of slighter degree of recessiveness, like recoverable psychoses, may be designated by the capital letter R, and those of more pronounced degree of recessiveness, like epilepsy, by the small letter r.

In Chart I [11] we find an instance of the union of a manic-depressive subject, of a family heavily tainted with manic-depressive

CHART I. L. R. CASE NO. 4215.



1. Insane before death.
2. "Nervous prostration," in sanitarium four weeks, recovered.
3. Manic-depressive insanity, in State hospital.
4. Manic-depressive insanity, in State hospital.
5. Manic-depressive insanity, in State hospital.
6. Epilepsy, in State hospital.
7. Manic-depressive insanity, in State hospital.

insanity, with a mate who is normal but who carries the taint of epilepsy. That mating may be represented by the following formula:

$$RR \times Dr \infty DR + Rr.$$

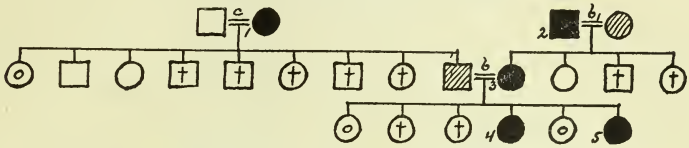
[10] Davenport. *Heredity of Skin Pigment in Man.* The American Naturalist, Vol. XLIV, Nov. and Dec., 1910.

[11] In all charts the following symbols have been employed: a square indicates a male subject; a circle indicates a female subject; □ or ○ = normal subject with normal progeny; ⊡ or ◎ = normal subject without progeny; ▨ or ◍ = normal subject with neuropathic progeny; ■ or ● = neuropathic subject; ⊞ or ⊕ = subject died in childhood; ⍰ or ⍰ = data unascertained. The type of mating is in each instance indicated by a small letter: *a, b, b_1, c, d, d_1, e,* as in Table II.

In other words, the offspring from such a mating may be either normal or manic-depressive, but not epileptic,—and such in fact was the actual result as shown in the chart.

In Chart II we find an instance of the union of a normal subject, whose mother suffered from a psychosis described by our

CHART II. M. S. CASE NO. 6558.



1. Hysterical when a girl; had idea someone was trying to poison her.
2. Epilepsy.
3. Epilepsy.
4. Manic-depressive insanity, in State hospital.
5. Very nervous.

informant as being in the nature of hysteria, with an epileptic mate whose father was also epileptic. That mating may be represented by the following formula:

$$DR \times rr \infty Dr + Rr.$$

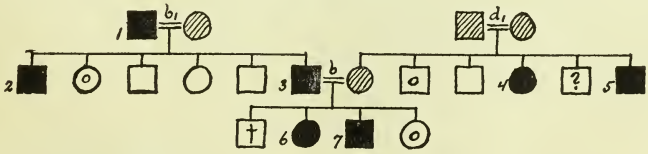
In other words, the offspring from such a mating may be either normal or having a psychosis recoverable in its nature and possibly resembling hysteria, but not epileptic; the chart shows that of the six offspring two died in childhood, two were normal, one had manic-depressive insanity, and one was "very nervous," but none were epileptic.

Similarly in Chart III we find a mating which may be represented by the following formula:

$$RR \times Dr \infty DR + Rr.$$

Of the four offspring one died in childhood, one was normal, one had manic-depressive insanity, and the remaining one is de-

CHART III. B. S. CASE NO. 7002.



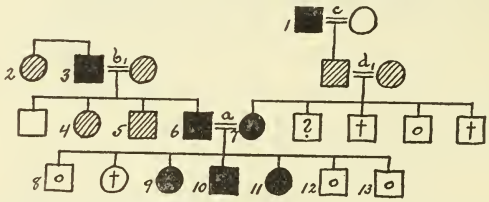
1. Senile deterioration.
2. Crank.
3. Recurrent melancholia with insomnia; five months in sanitarium.
4. Convulsions in childhood.
5. Convulsions in childhood.
6. Easily excited, nervous temperament.
7. Manic-depressive insanity, in State hospital.

scribed as being easily excited and of nervous temperament, but none had convulsions or epilepsy.

Finally in Chart IV we have an instance of the union of an epileptic subject, of a family tainted with epilepsy, with a mate who suffered from recurrent attacks of depression with insomnia; this mating may be represented by the following formula:

$$rr \times RR \infty Rr.$$

CHART IV. F. M. S. CASE NO. 6432.



1. Alcoholic, died from acute alcoholism.
2. Had feeble-minded, queer, insane daughter.
3. "Money mad," very cruel, very miserly though wealthy, left much of his money to housekeeper.
4. Daughter had fainting spells.
5. Has feeble-minded, queer son.
6. Fainting spells.
7. Recurrent attacks of depression.
8. 22 years old.
9. Recurrent attacks of depression, several suicidal attempts, in State hospital.
10. Manic-depressive insanity, in State hospital.
11. Attack of depression with suicidal tendency; recovery after three months.
12. 20 years old.
13. 15 years old.

In other words, all the offspring from such a mating should be neuropathic, suffering from a recoverable psychosis, but not from fainting spells or any other epileptic manifestation. The chart shows that of the seven offspring which resulted one died in childhood, three were normal being between fifteen and twenty-two years old,—probably below the age of incidence,—and the remaining three suffered from recoverable psychoses, but not from epilepsy.

It is probable that there are many degrees of recessiveness, but there is a great deal of evidence to show that degrees of recessiveness do not account for all varieties of clinical neuropathic manifestations.

§ 5. Neuropathic Equivalents.

In studying any neuropathic defect one must bear in mind that its clinical manifestations will vary with the personality of the subject and with conditions of environment. It is indeed a

notorious fact that most of the so-called clinical entities are remarkable for the variety of their manifestations. This fact has necessitated the introduction in clinical practice of the conception of neuropathic equivalents. Thus notably in epilepsy it has long been found necessary to bring together such manifestations as fainting spells, convulsive seizures, psychical attacks, brief absences, spells of automatism, periodic dipsomania, etc.

More recently Kraepelin has shown that certain depressions, manias, circular and mixed states are but various phases of the same underlying constitutional disorder analogous to the various equivalents of epilepsy.[12] And Dreyfus has been able to establish the fact that the anxious depressions of the involutional period are but a special variety of manic-depressive insanity.[13]

Similarly, in one immense group, under the general heading of dementia præcox we now, following Kraepelin, include such widely contrasted conditions as simple hebephrenia, catatonia, and *délire chronique à évolution systématique*—conditions which were long regarded as independent clinical entities.

Thus in clinical psychiatry progress has been marked by a simplification of classification through a far-reaching extension of the conception of clinical equivalents.

Some of the data furnished by our material seem to indicate the necessity for a still further extension of this conception. It is interesting to note that what we learn in institutional experience to recognize as insanity is a comparatively uncommon group of manifestations of the neuropathic constitution, for of our total of 437 neuropathic subjects (not counting the 21 who died in convulsions in early childhood) only 115, or 26.3 per cent, presented at any time in their lives indications for commitment to sanitariums or hospitals for the insane; moreover, it is obvious, where the facts are known in detail, that in most cases in which such indications have occurred they were in the shape of special reactions to special environmental conditions; and it seems equally obvious that our definition of the various types of neuropathic constitution must be in terms not of such special reactions, but rather of the more stable and more general underlying psychical traits and tendencies.

[12] Kraepelin, *Psychiatrie,* 7th ed., Vol. II, p. 558.

[13] Dreyfus, *Die Melancholie, ein Zustandsbild des manisch-depressiven Irreseins,* Jena, 1907.

Thus in families of patients suffering from manic-depressive insanity we find not only subjects clearly recognized as insane, but also subjects described as follows: high-strung, excitable; dictatorial, abnormally selfish; awful temper; periodic drinker, a demon when drunk; committed suicide; had severe blue spells.

In the pedigrees of cases of dementia præcox we find ancestors and collateral relatives described in the following significant terms: cranky, stubborn; worries over nothing; religious crank; nervous, queer; restless, has phobias; suspicious of friends and relatives.

And in the families of epileptics we find, besides cases of actual epilepsy or convulsions in infancy, also cases of hemicrania, recurrent sick headaches, fainting spells, nervous fidgety make-up, and the like.

The limits of the legitimate extension of the conception of equivalents thus seem to be beyond even the widest limits established by clinical definition.

It is not to be assumed, however, that members of the same family necessarily suffer from the same neuropathic defect in the shape of various clinical equivalents, for even brothers and sisters, children of the same parents, may suffer from neuropathic defects representing not equivalents but different degrees of recessiveness. Theoretically there is, in fact, only one combination of mates of which all neuropathic offspring will necessarily suffer from equivalent defects. The third, fifth, and sixth combinations ($RR \times DD$, $DR \times DD$, and $DD \times DD$) need not be considered at all in this connection as from them no neuropathic offspring will result. But let us consider the remaining three combinations ($RR \times RR$, $RR \times DR$, $DR \times DR$) from which neuropathic offspring may result.

If it is true that neuropathic defects may represent different degrees of recessiveness, as we have endeavored to show in a preceding section, then in the case of any neuropathic subject we have no way of telling whether the inheritance of his defect is homozygous or heterozygous, unless we possess an exceptionally detailed pedigree extending far back to past generations; in other words, we cannot tell whether he inherits from the two parents defects of the same or of different degrees of recessiveness. Continuing to make use of the symbols R and r to represent, re-

spectively, lesser and more pronounced degrees of recessiveness, a given neuropathic condition may accordingly be represented either by the symbol RR or Rr; and similarly the condition of a normal subject who represents simplex inheritance, *i. e.*, who inherits the neuropathic taint from one parent, may be represented either by the symbol DR or Dr. It may be readily seen, then, that in the case of either the first or second combination there are possibilities of offspring with more than one type of neuropathic defect, *i. e.*, of defects of different degrees of recessiveness, as may be shown by the following formulæ:

$$1.\ Rr \times Rr \infty RR + 2Rr + rr.$$
$$Rr \times rr \infty Rr + rr.$$
$$2.\ Rr \times Dr \infty DR + Dr + Rr + rr.$$

The neuropathic conditions in the children resulting from such matings would not necessarily be equivalents.

But in the case of the fourth type of mating, that of two simplex individuals, *i. e.*, two individuals who are normal but carry the taint from their ancestors, the neuropathic offspring which may result would in any instance show defects which are theoretical equivalents; for from every theoretically possible variety of combination only one type of neuropathic offspring can result, as may be shown by the following formulæ:

$$DR \times DR \infty DD + 2DR + RR.$$
$$DR \times Dr \infty DD + DR + Dr + Rr.$$
$$Dr \times Dr \infty DD + 2Dr + rr.$$

Clinical manifestations will, of course, vary with the personality of the subject, the age at which the disorder makes its appearance, the nature of the exciting cause, and other environmental conditions; but in spite of such variations we are able, in the light of a better knowledge of the mechanism of heredity, to identify neuropathic equivalents at least when they occur in brothers and sisters who are the offspring of the matings of the fourth type.

In matings of this type only one-fourth of all the offspring, on the average, exhibit the neuropathic condition; therefore most such families have not more than one neuropathic subject and do not afford an opportunity of comparing neuropathic equivalents; but many large families, or some in which by an unlucky chance more than one neuropathic subject has resulted, do afford

such an opportunity, and *thus a new aid for the study of neuropathic equivalents becomes available.*

In our own material the pedigree charts from V to XXIX present instances of matings of the fourth type from each of which two or more neuropathic offspring have resulted. Comparisons of the brothers and sisters in these families reveal points of rather peculiar interest.

In some instances the manifestations clinically observed were either similar or identical; such instances are to be found in Charts VII, IX, XV, XVI, XVII, XX, XXIII, and XXV.

In other instances we find well defined psychoses alongside of cases presenting oddities of conduct or of disposition which are familiar to physicians as types of make-up constituting the characteristic soil upon which the psychoses develop.[14] Thus in Chart XV we find a case of dementia præcox, in a brother "nervous hysteria when his sister died, had hallucinations of sight and hearing, was disturbed and had to be restrained," and in a sister "nervous temperament, easily excited, has weak spells." In Chart XXI we find in one case "nervous breakdown early in life, was unable to work, recovered," in a sister "awful temper." In Chart XXVI we find in one case the following note: "insane twice, very disturbed, recovered each time," and in a sister "odd, nervous temperament, easily excited." In Chart XXVIII we find a subject who was "insane a few months before death," in one sister "melancholy disposition, had nervous prostration," and in another sister "nervous temperament, melancholy."

Perhaps the most striking finding is that of fainting spells or convulsions in childhood alongside of dementia præcox; this occurs in Charts V, VI, VIII, XI, and XII. In this connection may be recalled the rather frequent occurrence of seizures of various sorts in dementia præcox—fainting spells, epileptiform convulsions, muscle spasms, etc.: according to Kraepelin in 18 per cent of all cases.[15]

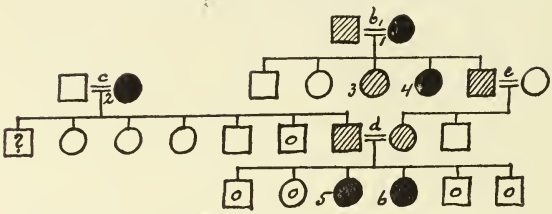
Finally we would point out the occurrence, as neuropathic

[14] Aug. Hoch, *Constitutional Factors in the Dementia Præcox Group,* Rev. of Neurol. and Psychiatry, Aug., 1910.—Ed. Reiss, *Konstitutionelle Verstimmung und manisch-depressives Irresein,* Zeitschr. f. d. gesamte Neurol. u. Psychiatrie, Vol. II, p. 600, 1910.

[15] Kraepelin, *Psychiatrie,* 7th ed., Vol. II, p. 188.

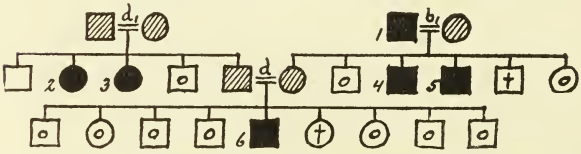
equivalents, of conditions which are clinically altogether dissimilar. For instance, in Chart XVII one subject is noted as having been "insane during pregnancy with second child, recovered," and her sister as a "religious recluse, nun in convent in Australia": perhaps in this instance the difference between the married state and celibacy accounts for the difference in manifestations. In Charts XIX and XXVII we find cases of senile deterioration related to peculiar psychoses occurring earlier in life; in one case we find the following note: "When a girl went to Washington, lost her money, could not tell why she went there, was placed in an institution; says a man has 'witched' her; has in her pocket a bottle of gin which she takes 'for blood poison'"; —in another case: "Irritable in early years of marriage, had hysterical spells, ill-treated her step-children";—and in a third case: "Nervous after sister's death, was too nervous to be interviewed or visited by anyone." In Charts XXII and XXIX the following cases are associated as family equivalents with epilepsy: "Moderately alcoholic, ideas of persecution against relatives"; —"Loquacious, rambling, odd, had severe attacks of depression following childbirth";—"Subject to spells of severe depression";—"Seems to have lost interest in life, when interviewed would say only 'I know nothing more than sister told you'";— "Moderately alcoholic, never settled down to anything but roamed around all his life until he died at the age of 62 years of pneumonia." It should be pointed out here that in classifying the matings there is always a possibility of error especially in the direction of overlooking neuropathic traits and, owing to misinformation or misjudgment of our informants, counting one or both mates as normal who should properly be counted as neuropathic. Thus in individual instances matings classified as belonging to the fourth type (DR×DR) may in reality be of the second type (RR×DR), in which case, as already shown, the neuropathic offspring may present defects of different degrees of recessiveness and not necessarily equivalents. Errors could be guarded against only with the aid of a large amount of material; in other words *any two dissimilar neuropathic manifestations should not be definitely classed as equivalents unless they are repeatedly met with in brothers and sisters of a large number of families resulting from matings of the fourth type.*

CHART V. F. R. CASE NO. 6893.



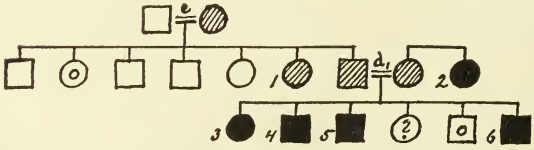
1. Died insane in State hospital.
2. Hysterical spells for about three years.
3. One daughter insane, in State hospital.
4. Insane, in State hospital, recovered, insane again at 76 years.
5. Died in convulsions in childhood.
6. Dementia præcox, catatonic, in State hospital.

CHART VI. E. C. CASE NO. 7048.



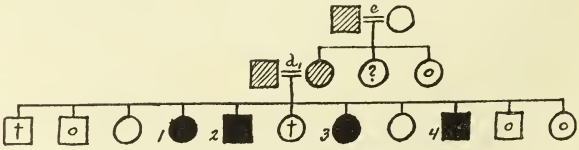
1. Nervous temperament, easily excited, moderately alcoholic.
2. Nervous, erratic, excitable.
3. Fainting spells.
4. Nervous temperament, easily excited.
5. Easily excited, moderately alcoholic.
6. Dementia præcox, catatonic, in State hospital.

CHART VII. J. C. CASE NO. 2921.



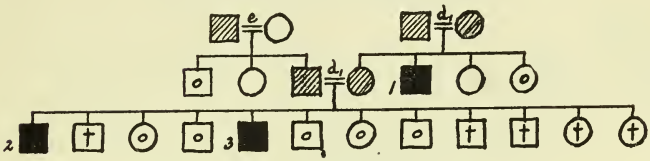
1. Daughter was sister of mercy in Australia; is said to have died of homesickness.
2. Feeble-minded, eccentric, laughs without cause, says "I don't know" in reply to simple questions.
3. Died insane at asylum in Cork.
4. Was insane at asylum in Cork; was discharged improved but is still queer.
5. Dementia præcox, at State hospital.
6. Dementia præcox, at State hospital.

CHART VIII. T. H. CASE NO. 6330.



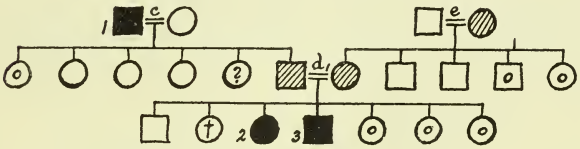
1. Nervous temperament, fidgety, has nervous son.
2. Dementia præcox, paranoid, in State hospital.
3. Convulsions following small-pox at the age of 5 years.
4. Died in convulsions at the age of 1 year.

CHART IX. M. O'T. CASE NO. 6115.



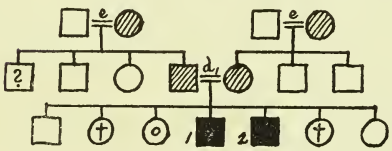
1. Very irritable, violent temper.
2. Dementia præcox, in State hospital.
3. Dementia præcox, in State hospital.

CHART X. R. M. CASE NO. 6459.



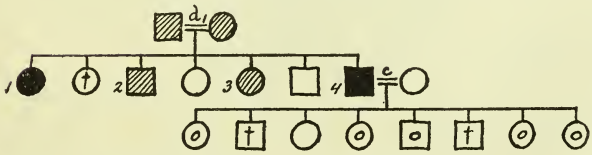
1. Quick tempered.
2. Became melancholy due to disappointment.
3. Dementia præcox, paranoid, in State hospital.

CHART XI. F. S. CASE NO. 6492.



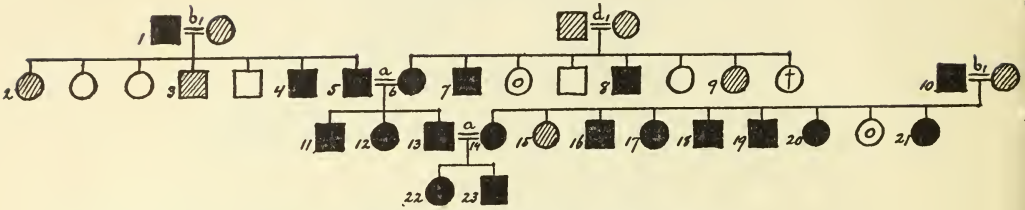
1. Dementia præcox, paranoid, in State hospital.
2. Died of convulsions during teething in childhood.

CHART XII. E. H. CASE NO. 01655.



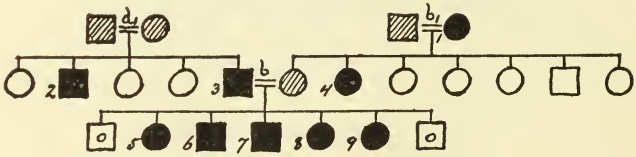
1. Fainting spells.
2. Son has dementia præcox, in State hospital.
3. Daughter has fainting spells.
4. Dementia præcox, simple, in State hospital.

CHART XIII. M. H. CASE NO. 6323.



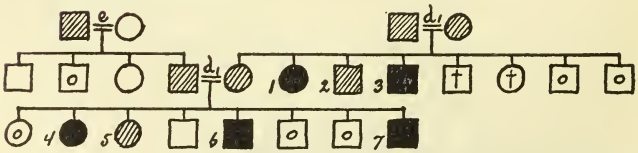
1. Committed suicide by hanging.
2. One daughter insane, another eccentric.
3. One son mentally defective.
4. Alcoholic.
5. Eccentric, quick-tempered, "crazy John."
6. Eccentric, traveled about alone at night, slept through the day.
7. Alcoholic, left his family.
8. Committed suicide by hanging.
9. Daughter committed suicide.
10. Nervous temperament, easily upset.
11. Nervous temperament, "fretter," son was insane and recovered.
12. Nervous temperament, son nervous.
13. Very peculiar, eccentric.
14. Epileptic.
15. One son mentally defective.
16. Nervous temperament, queer in spells, eccentric.
17. Eccentric, begs gloves, handkerchiefs, etc., without need.
18. Nervous temperament.
19. Alcoholic, nervous temperament.
20. Nervous.
21. Eccentric, never associated with anyone, lived year round in outside kitchen.
22. Dementia præcox, paranoid, in State hospital.
23. Nervous temperament, easily excited, easily upset; daughter also nervous and excitable.

CHART XIV. J. H. CASE NO. 7055.



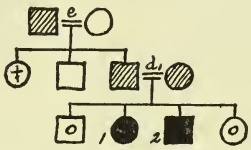
1. Senile deterioration.
2. Very alcoholic, died at age of 40 years of "paralysis."
3. Violent temper, ideas of persecution against friends.
4. Was nervous following the birth of first child, recovered.
5. Very nervous temperament.
6. Nervous breakdown several times.
7. Dementia præcox, catatonic, in State hospital.
8. Nervous temperament.
9. Nervous temperament.

CHART XV. F. E. CASE NO. 7183.



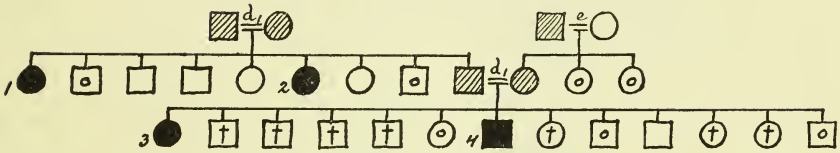
1. Nervous, little things bothered her, worried a great deal; her daughter was nervous and melancholy.
2. Son had convulsions in childhood.
3. Excitable, nervous, worries.
4. Nervous temperament; easily excited; has "weak spells."
5. Daughter had convulsions in childhood.
6. Dementia præcox, paranoid, in State hospital.
7. Had "nervous hysteria" when his sister died; had hallucinations of sight and hearing; was disturbed and had to be restrained.

CHART XVI. H. M. CASE NO. 6672.



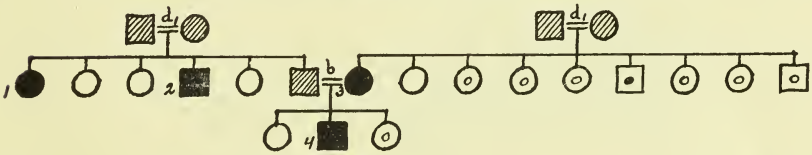
1. Dementia præcox, hebephrenic, in State hospital.
2. Dementia præcox, simple, in State hospital.

CHART XVII. D. H. CASE NO. 6699.



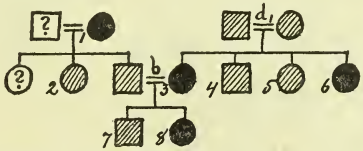
1. Insane during pregnancy with second child, recovered.
2. Nun in convent in Australia, "religious recluse."
3. Chronic psychosis, unclassified, in State hospital.
4. Dementia præcox, paranoid, in State hospital.

CHART XVIII. E. B. L. CASE NO. 6575.



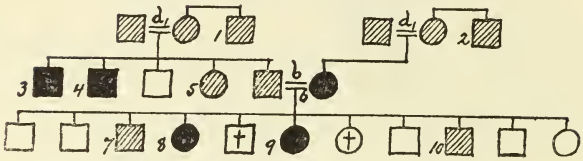
1. Deaf and dumb imbecile.
2. Sunstroke affected his mind, became childish and foolish.
3. Nervous temperament, fidgety.
4. Allied to manic-depressive insanity, in State hospital.

CHART XIX. E. F. CASE NO. 6529.



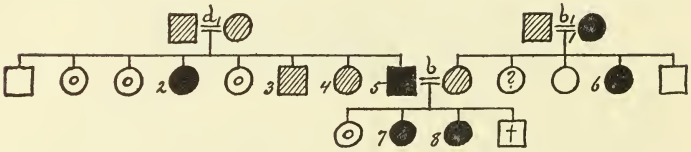
1. Senile deterioration shortly before death.
2. Son died of alcoholism.
3. When a girl went to Washington, lost her money, could not tell why she went there, was placed in an institution. Says a man has "witched" her. Has in her pocket a bottle of gin which she takes "for blood poison."
4. One son nervous, excitable, dull; one daughter mentally defective.
5. One son died of alcoholism.
6. Senile deterioration shortly before death.
7. Daughter had convulsions during teething.
8. Dementia præcox, paranoid, in State hospital.

CHART XX. A. M. B. CASE NO. 6723.



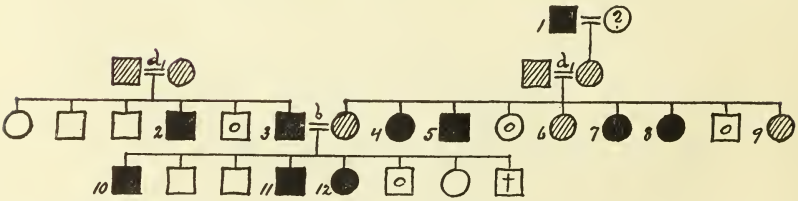
1. Insane children.
2. Insane daughter.
3. Nervous, queer.
4. Hot-tempered, queer, " nearly went insane over money losses."
5. Insane daughter.
6. Senile deterioration.
7. Child had convulsions.
8. Paranoic condition, in State hospital.
9. Paranoic condition, in State hospital.
10. Nervous daughter.

CHART XXI. M. F. CASE NO. 6917.



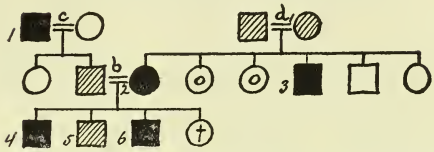
1. High strung, excitable.
2. " Awful temper."
3. Son died insane.
4. Daughter subject to attacks of depression.
5. Nervous breakdown early in life, unable to work, recovered.
6. Dictatorial, abnormally selfish.
7. Very queer, lives alone, boards cats for living.
8. Allied to manic-depressive insanity, in State hospital.

CHART XXII. B. A. CASE NO. 7263.



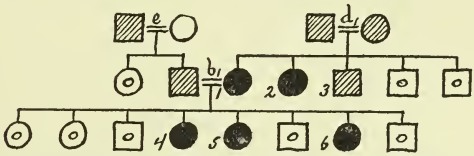
1. Very alcoholic.
2. Had nervous breakdown at the age of 53 years, died in a year.
3. Excitable temperament, abnormally suspicious, years ago periodically alcoholic.
4. Epileptic.
5. Moderately alcoholic, ideas of persecution against relatives.
6. Has feeble-minded son.
7. Loquacious, rambling, odd; had severe attack of depression following childbirth.
8. Subject to spells of severe depression.
9. Son is periodic drinker.
10. Water on the brain in childhood; stole money and worried about it greatly.
11. Slightly nervous, fainting spells.
12. Allied to manic-depressive insanity, in State hospital.

CHART XXIII. E. B. CASE NO. 7101.



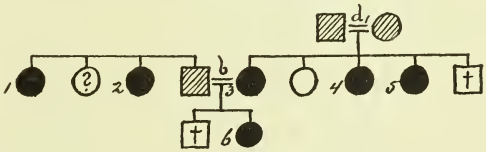
1. Senile deterioration.
2. Subject to "fits of paralysis," had one the day of the funeral (hysteria?).
3. Very alcoholic.
4. Was insane for sixteen years, died in State hospital.
5. Son had convulsions in childhood.
6. Allied to manic-depressive insanity, in State hospital.

CHART XXIV. J. M. CASE NO. 6426.



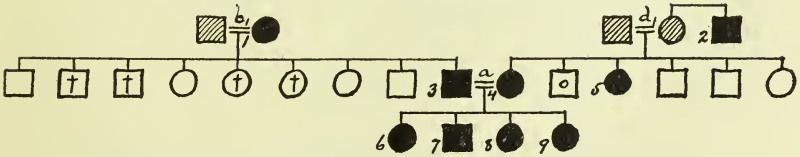
1. Was insane six months at menopause, depressed, "religious mania," recovered.
2. Had severe blue spells during menopause; daughter was treated for "nerves" at the age of 14 years.
3. Daughter had "nervous trouble," was under physician's care, recovered.
4. Quick tempered.
5. Dementia præcox, catatonic, in State hospital.
6. Nervous, fidgety, was "near collapse" and had to be sent away for two weeks about one year ago.

CHART XXV. E. H. CASE NO. 7253.



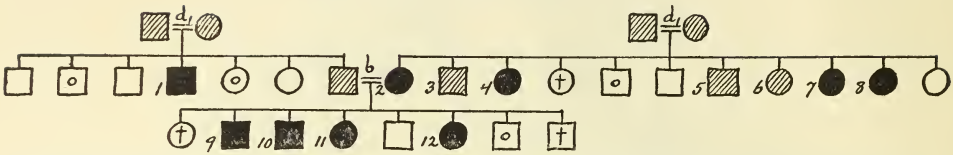
1. Nervous, fidgety.
2. Insane at menopause for one year, recovered, was in sanitarium.
3. Shallow woman, inferior intelligence, alcoholic, smokes.
4. Nervous, fidgety, treated by physician for "neurasthenia"; has eccentric, alcoholic son.
5. Shallow, frivolous woman, nervous, fidgety, easily excited.
6. Hysterical psychosis, in State hospital.

CHART XXVI. J. T. S. CASE NO. 7273.



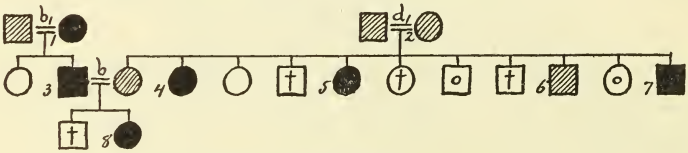
1. Ugly tempered at times, said to have been addicted to opium.
2. Insane before death; four out of seven children had manic-depressive insanity.
3. Senile dementia, ugly at times.
4. Odd, nervous temperament, easily excited.
5. Insane twice, very disturbed, recovered each time.
6. Nervous temperament, excitable.
7. Has been very nervous and melancholy for last two years.
8. Manic-depressive insanity, in State hospital.
9. Had nervous breakdown, hypochondriacal; son nervous.

CHART XXVII. S. S. CASE NO. 15177.



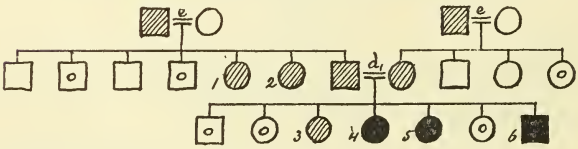
1. Cross and irritable; very alcoholic, took opium.
2. Irritable in early years of marriage, had "hysterical spells," ill-treated her step-children.
3. Several children were nervous, one son insane.
4. "Nervous" after sister's death; was too nervous to be interviewed or visited by anyone.
5. Had very nervous son.
6. One daughter had convulsions during teething, has hysterics when anything exciting occurs, is always nervous; another daughter is very nervous.
7. Senile deterioration for one year before death.
8. Senile deterioration last year and a half of her life.
9. Nervous, "especially when he had a cold or a headache."
10. Childish, has impediment in speech, has fits said to be epileptic.
11. Epileptic, in State hospital.
12. Very nervous, easily upset, poorly balanced.

CHART XXVIII. W. S. CASE NO. 6703.



1. Died insane in State hospital.
2. Cousin epileptic.
3. Nervous temperament, fidgety.
4. Melancholy disposition, had nervous prostration.
5. Nervous temperament, melancholy.
6. Daughter epileptic.
7. Insane few months before death.
8. Epilepsy, in State hospital.

CHART XXIX. M. J. CASE NO. 6295.



1. Daughter had melancholia for several years, recovered.
2. Daughter has nervous spells, mind rambles; has been in sanitarium for several years.
3. Daughter had manic-depressive insanity, was in State hospital, recovered.
4. Epilepsy, in State hospital.
5. Seems to have lost interest in life; when interviewed would say only "I know nothing more than sister told you."
6. Moderately alcoholic, never settled down to anything, but roamed around all his life until he died of pneumonia at the age of 62 years.

§ 6. Prevalence of the Neuropathic Taint in the General Population.

It would be very difficult, not to say impossible, to estimate accurately the proportion of neuropathic subjects in the total general population in any large community.

In the report for the year ending September 30, 1909, the New York State Commission in Lunacy gives the number of insane patients in State hospitals and private institutions as 31,540 or one to 276 in the general population; this figure does not include the inmates of institutions for the feeble-minded and for epileptics, it does not include the neuropathic subjects who find their way into prisons, reformatories, almshouses, disciplinary schools, hospitals for incurables, general hospitals, neurological clinics, etc., and, above all, it does not include the many neuropathic subjects whose infirmities are latent or of such nature as not to incapacitate them for ordinary occupations and life at large.

An attempt to estimate the proportion of all mental defectives (idiots and imbeciles as well as the insane) in the general population was made in the Canton of Bern, Switzerland, in 1902. In the enumeration were included patients who lived in their homes as well as in asylums. The proportion was 1 to 117 in the general population.[16]

It is clear that the proportion thus estimated must fall far short of the figure that would represent the actual incidence of the neuropathic constitution, for in such an enumeration no account is taken of conditions like hysteria, abnormal disposition, and the like,—conditions which could be included neither with cases of feeble-mindedness nor with those of frank insanity.

So far as our own material is concerned we have already had occasion to state that of all subjects recorded as neuropathic, not counting those who died in childhood, only 26.3 per cent presented at any times in their lives indications for commitment to sanitariums or public institutions. If this percentage be regarded as fairly representative in general, then the total incidence of neuropathic manifestations would be roughly estimated as affecting between 1.5 and 2.0 per cent of the general population.

In order to form an idea of the real prevalence of the neuropathic taint in the general population it is necessary to know not only the proportion of individuals actually neuropathic, but also that of those who are themselves normal but carry the taint from their ancestors, as represented by the symbol DR. In our material, out of 172 matings which resulted in neuropathic offspring

[16] *Ergebnisse der Zählung der Geisteskanken im Kanton Bren, 1. Mai, 1902.* Mitteilungen der Bernischer statistischen Bureaus, 1903.

only in 17 were both mates neuropathic, in 93 one mate was neuropathic and the other normal, and in 62 both mates were normal.

Our material affords a means of estimating the probable proportion of individuals, in the communities in which our study was made, who carry the neuropathic taint.

It will be borne in mind that an individual who is normal but who carries the neuropathic taint and is capable of transmitting it, can have neuropathic offspring only when his mate is either neuropathic or normal but, like himself, carries the taint; for if his mate is normal and of pure normal ancestry no neuropathic offspring will result, as has already been shown, and as is illustrated by the following formula:

$$DR \times DD \infty DD + DR.$$

A group of subjects who are capable under the above-mentioned conditions of producing neuropathic offspring, who marry freely into the general population, selecting mates more or less at random, will show, by the relative frequency with which they produce neuropathic offspring, how common in the general population are persons who carry the neuropathic taint.

Among the subjects who figure in our charts and statistics there are 466 who are theoretically classed as simplex, represented by the symbol DR, namely, all the normal subjects who have resulted from matings of the second and third types, two-thirds of the normal subjects who have resulted from matings of the fourth type, and one-half of those who have resulted from matings of the fifth type. From this number must be deducted 179 who have not married or have married but have had no children. From the remainder must be deducted further 66 subjects who are among the direct ascendants of our patients, all of whom have, of course, had neuropathic offspring, and who should obviously not figure in such statistics. Of the remaining 221 subjects, all of whom, if mated with neuropathic or simplex subjects, were capable of producing neuropathic offspring, 70 actually had such offspring and 151 had normal offspring.

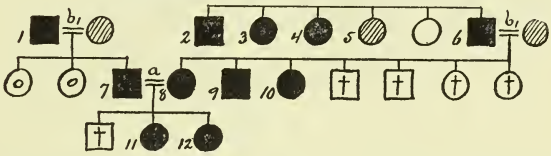
In other words, our data seem to show that no less than 31.6 per cent of the general population carry the neuropathic taint!

It is interesting to note here that the districts in which our investigations have been carried out are, according to the statistics

of the State Commission in Lunacy, among those showing comparatively low or moderate incidence of insanity.[17]

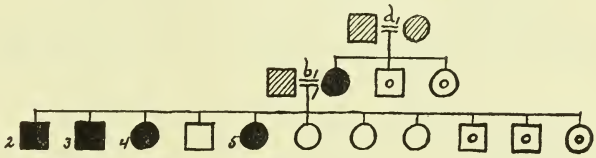
Our material is presented in detail in the shape of pedigree charts, some of which have already appeared in connection with § 4 and § 5; the rest are appended here.

CHART XXX. R. G. CASE NO. 6873.



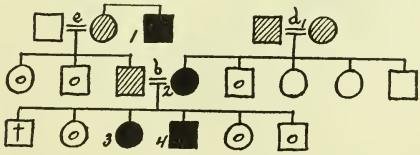
1. Alcoholic.
2. Feeble-minded.
3. Feeble-minded.
4. Hypochrondriacal, had nervous prostration.
5. Daughter insane, died in State hospital.
6. "Visionary, had no idea of the value of money, always trying big schemes, became a complete wreck from drink."
7. Eccentric.
8. Allied to manic-depressive insanity, in State hospital.
9. "Visionary, unsound, goes wild in arguments, imagines he owns everything."
10. "Crazy," fits of temper, gets wild; violent headaches.
11. Dementia præcox, paranoid, in State hospital.
12. Microcephalic, defective, died in infancy.

CHART XXXI. F. N. CASE NO. 7452.



1. Nervous temperament, easily excited.
2. Nervous temperament, easily excited.
3. Excessively alcoholic early in life, had cirrhosis of the liver.
4. Has spells of rigidity and twitching "only when she can't have her way"; always queer, never lived with husband, finally divorced; "worse than the patient herself (sister) sometimes."
5. Dementia præcox, paranoid, in State hospital.

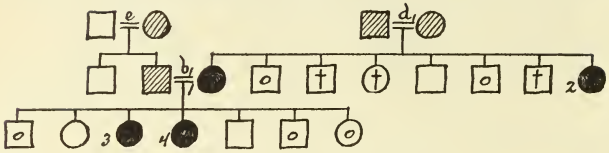
CHART XXXII. L. P. CASE NO. 6234.



1. Epilepsy.
2. "Great talker"; inferior make-up.
3. Very nervous following birth of son, recovered.
4. Dementia præcox, paranoid, in State hospital.

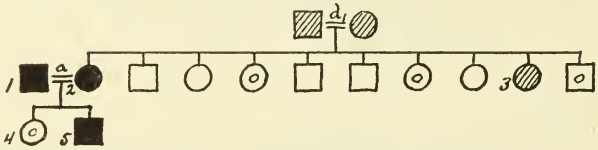
[17] Report of the New York State Commission in Lunacy for the year ending September 30, 1909.

CHART XXXIII. M. D. CASE NO. 6946.



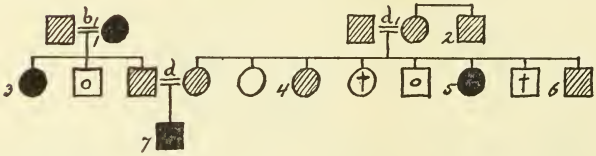
1. Attacks of depression, was in State hospital, recovered.
2. Convulsions in childhood.
3. Insane for four months following birth of child, was in State hospital, recovered.
4. Manic-depressive insanity, in State hospital, recovered.

CHART XXXIV. A. P. CASE NO. 7278.



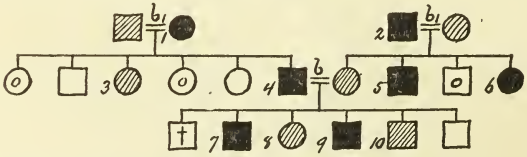
1. Attack of depression, recovered.
2. Hysteria.
3. Son feeble-minded.
4. 18 years old.
5. Dementia præcox, paranoid, in State hospital.

CHART XXXV. F. L. CASE NO. 7295.



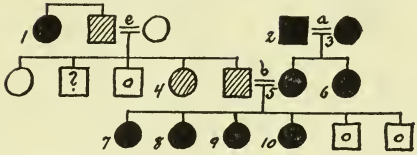
1. Senile psychosis.
2. Daughter insane.
3. Insane, was in State hospital, discharged as recovered but is still very eccentric.
4. Son had convulsions in childhood, later in life committed suicide.
5. Alcoholic.
6. Son epileptic.
7. Dementia præcox, paranoid, in State hospital.

CHART XXXVI. F. T. CASE NO. 7218.



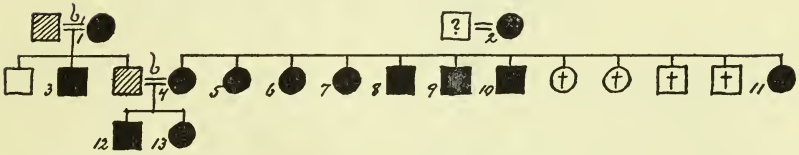
1. Senile deterioration.
2. Very alcoholic, disappeared from home, suspected suicide.
3. Daughter nervous, restless, has phobias.
4. Melancholia for several months; make-up restless and worrisome.
5. Restless, fidgety, "lack of repose," moderately alcoholic.
6. Chronic delusional psychosis; died in State hospital.
7. Restless.
8. Child died in convulsions; another has violent fits of temper.
9. Dementia præcox, paranoid, in State hospital.
10. Child had convulsions while teething.

CHART XXXVII. C. S. CASE NO. 7063.



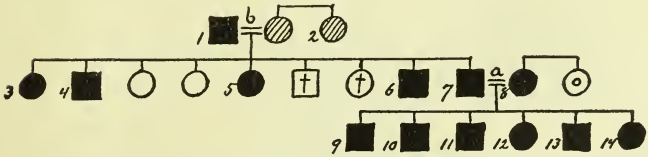
1. Nervous, flighty, "talks about things she knows nothing of."
2. Alcoholic, had delirium tremens.
3. Sick headaches.
4. Has epileptic children.
5. Sick headaches, unilateral.
6. Sick headaches.
7. Epileptic, in State hospital.
8. Convulsions in childhood, sick headaches.
9. Died in convulsions.
10. Nervous, fidgety.

CHART XXXVIII. A. L. McM. CASE NO. 7302.



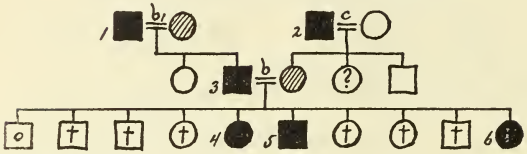
1. Died insane at an advanced age.
2. Eccentric.
3. Died insane; son also died insane in an asylum.
4. 5. 6. 7. Eccentric, "very queer."
8. 9. 10. Eccentric, alcoholic.
11. Eccentric, "very queer."
12. "Peculiar."
13. Manic-depressive insanity, in State hospital.

CHART XXXIX. I. W. CASE NO. 7008.



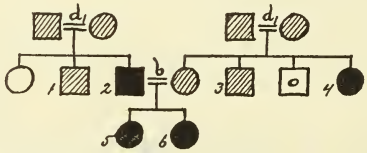
1. Violent temper, very alcoholic; became violently insane, had to be tied down; died insane.
2. Daughter was somewhat feeble-minded.
3. Chronically insane, in State hospital; daughter had screaming spells when a baby, is of nervous temperament.
4. Not considered bright.
5. Not very bright.
6. Always feeble-minded.
7. Violent temper, "always fighting, almost an animal now."
8. Extremely alcoholic.
9. Quick-tempered, severe headaches.
10. Very alcoholic, not very bright.
11. Quick-tempered, not very bright; son died in convulsions in infancy.
12. Paranoic condition, in State hospital.
13. Chronically insane, in State hospital; son had convulsions.
14. Bad temper, eccentric.

CHART XL. J. H. CASE NO. 6283.



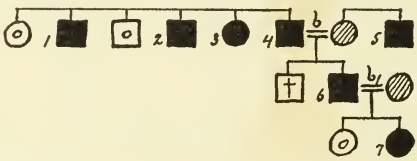
1. Very alcoholic.
2. Alcoholic.
3. Very irritable, nervous, disagreeable; children afraid of him.
4. Nervous temperament, severe blue spells.
5. Dementia præcox, in State hospital.
6. High strung, cries very easily.

CHART XLI. M. L. CASE NO. 6120.



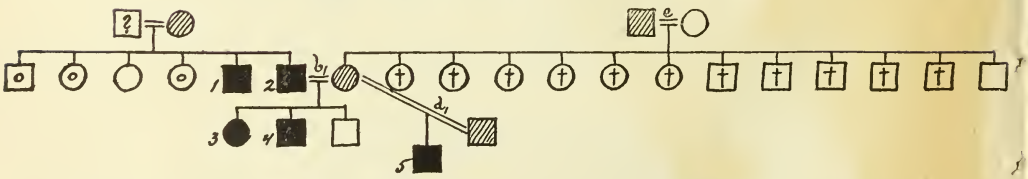
1. Son is of "nervous make-up."
2. Following business reverses he worried, doctor said he was insane and sent him to a sanitarium.
3. Son deformed, nervous, "very odd."
4. Extremely nervous, "nervously exhausted"; has son who is also extremely nervous, eccentric, has severe headaches.
5. Always nervous.
6. Manic-depressive insanity, in State hospital.

CHART XLII. M. W. P. CASE NO. 6637.



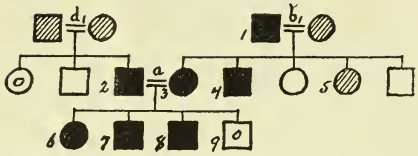
1. Very alcoholic.
2. Very alcoholic.
3. Melancholy through trouble, was in State hospital 18 months.
4. Alcoholic, left home, son saw him only three times.
5. Very alcoholic, daughter had epilepsy.
6. Periodic drinker.
7. Dementia præcox, in State hospital.

CHART XLIII. J. C. McM. CASE NO. 3664.



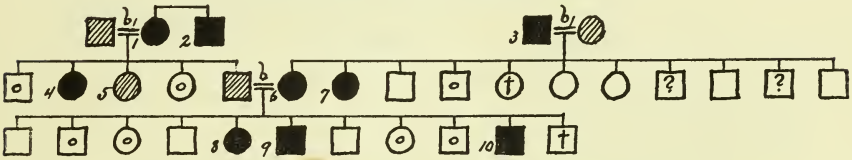
1. Had some mental trouble, was in sanitarium for several months about seven years ago, recovered.
2. Eccentric, cross, cranky, irritable, very alcoholic, wife was afraid of him.
3. Nervous temperament, excitable.
4. Epilepsy, in State hospital.
5. Melancholy, was in State hospital for four months.

CHART XLIV. E. L. CASE NO. 7325.



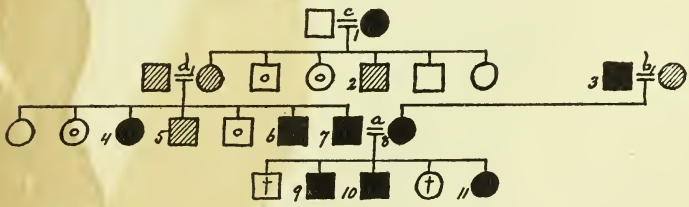
1. Violent, quick temper.
2. Periodic drinker.
3. Spells of "nervous weakness" after son became insane, was under physician's care.
4. Periodic drinker.
5. Daughter "odd," very quiet disposition.
6. Died in infancy of convulsions ("inward spasms").
7. Died in infancy of convulsions ("inward spasms").
8. Dementia præcox, paranoid, in State hospital.
9. 20 years old, apparently normal.

CHART XLV. B. B. CASE NO. 1278.



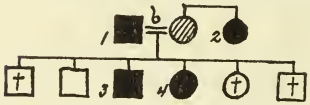
1. Violent temper, screamed when she got angry, flighty, "if anything ails her it goes to her head."
2. Insane.
3. Alcoholic.
4. Epilepsy; daughter nervous.
5. One daughter had nervous prostration following childbirth and died; another daughter is nervous.
6. Nervous, eccentric.
7. Is nervous, has fainting spells, suffers from neuralgia, had nervous prostration at menopause; one child died in convulsions.
8. Nervous.
9. Dementia præcox, in State hospital.
10. Died in convulsions in childhood.

CHART XLVI. C. R. S. CASE NO. 17242.



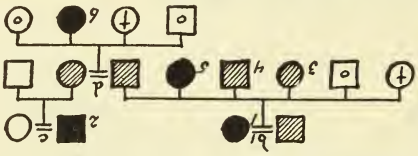
1. Nervous and queer.
2. Two sons were insane; one had melancholy spells, was in an asylum, committed suicide; another is still in an asylum.
3. Very irritable and eccentric, had spells when he was violent and ill-treated his wife, was by some considered insane.
4. "Nervous."
5. Has feeble-minded, nervous son.
6. Was insane, committed suicide.
7. Nervous, irritable, very eccentric, religious crank.
8. Spells of eccentricity, "out of her mind at times."
9. Epileptic, alcoholic, criminal, in State hospital.
10. Dementia præcox, paranoid, in State hospital.
11. Died in convulsions in infancy.

CHART XLVII. C. R. S.'S STEP-BROTHERS AND STEP-SISTERS. CASE NO. 17242.



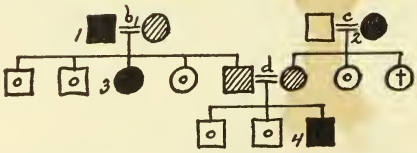
1. Nervous, irritable, very eccentric, religious crank; C. R. S.'s father.
2. Has fainting spells, fits of craziness at monthly periods, tears her hair, etc.
3. Irresponsible criminal, committed theft several times, not well-balanced, degenerate, moderate drinker.
4. Nervous, has fainting spells, "nervous prostration."

CHART XLVIII. O. D. CASE NO. 5894.



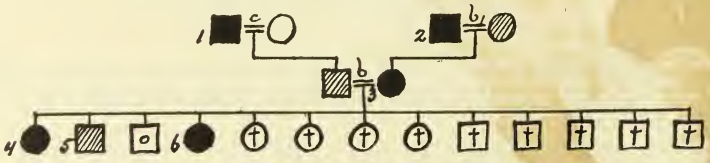
1. Nervous, "not right," ideas of jealousy, "subject to fits of unreasonable anger, turned guests out of the house."
2. Eccentric, irritable.
3. Has very nervous daughter.
4. Has nervous son.
5. Very eccentric in dress and manners; one daughter has fainting spells; another is "out of her mind by spells."
6. Dementia præcox, paranoid, in State hospital.

CHART XLIX. H. N. CASE NO. 3962.



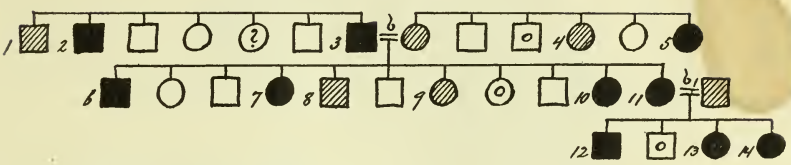
1. Was insane for eight years before he died.
2. Nervous.
3. Nervous, insomnia, neuralgia.
4. Dementia præcox, in State hospital.

CHART L. M. E. S. CASE NO. 4455.



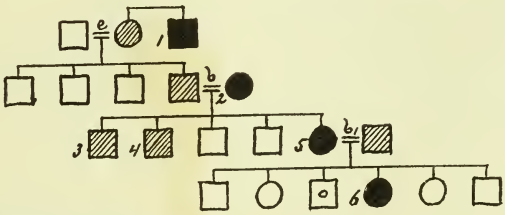
1. Insane.
2. Queer, intemperate.
3. Chronic psychosis "caused by worry" at the age of 62 years; in State hospital.
4. Died at the age of 23 years, was "nervous invalid" for two years before death.
5. One son queer.
6. Nervous, excitable, queer.

CHART LI. L. W. CASE NO. 14840.



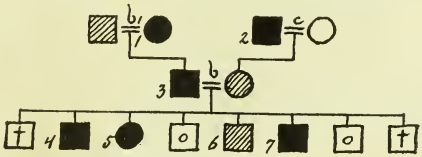
1. One daughter nervous and odd.
2. Violently insane for six months before death; three children had convulsions.
3. Suffered several years from "nervous trouble," was too ill to work; became insane just before death; to escape law suit committed suicide.
4. Two daughters very nervous.
5. Nervous and odd; three children had water on the brain, one died in convulsions.
6. Nervous, suffered from nightmares.
7. Was insane for six months, in State hospital, recovered; one child is nervous, three had convulsions in childhood.
8. Son had convulsions in childhood.
9. Four children, all nervous, two had convulsions in childhood.
10. Nervous, eccentric, spells of depression with crying.
11. Chronically insane, in State hospital.
12. Nervous, convulsions in infancy.
13. Queer, dull and stupid, mind affected, "not right."
14. Very nervous, especially at time of pregnancy, "her mind is affected at times."

CHART LII. A. E. S. CASE NO. 2998.



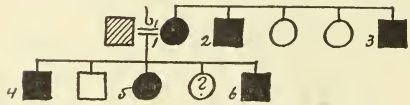
1. Eccentric, religious fanatic.
2. Very excitable and nervous, violent temper, threw things at people when angry.
3. Daughter has nervous spells, probably petit mal.
4. Daughter had convulsions in childhood.
5. Dementia præcox, paranoid, in State hospital.
6. Fainting spells, "lump in throat; knew what was going on but could not speak while spell lasted";—probably hysteria.

CHART LIII. E. C. P. CASE NO. 6322.



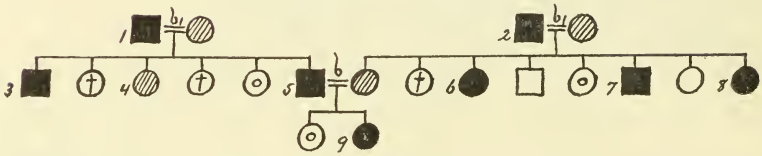
1. Senile dementia.
2. Senile dementia, weak spells.
3. Insane, in State hospital for a short time.
4. Restless, fidgety.
5. Dementia præcox, in State hospital.
6. Two daughters suffered from sick headaches.
7. Nervous, restless, worrisome.

CHART LIV. M. M. CASE NO. 6290.



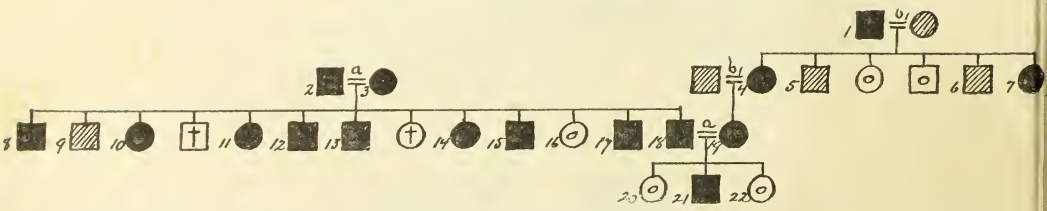
1. "High-tempered."
2. "High-tempered," alcoholic.
3. "Bad temper," moderately alcoholic.
4. Very alcoholic.
5. Dementia præcox, catatonic, in State hospital.
6. Very alcoholic.

CHART LV. F. B. CASE NO. 6874.



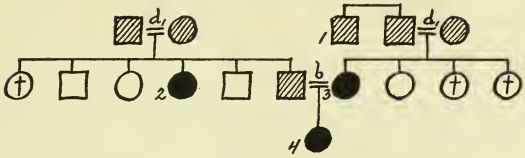
1. "Worrier."
2. Nervous temperament, fidgety, depressed spells, was in sanitarium.
3. Nervous breakdown, "hysterical" a few years ago, recovered.
4. Child has nervous temperament, doctor says "should be kept outdoors."
5. Nervous temperament, worries, at times pessimistic, considered queer though bright.
6. Nervous temperament, worries.
7. Insane, depressed, "religious mania," in State hospital four months, recovered.
8. Insane, in State hospital about six years, onset after birth of sixth child; imagines she is a detective and has immense treasures.
9. Dementia præcox, paranoid, in State hospital.

CHART LVI. G. G. CASE NO. 6880.



1. Easily excited, bad temper, very alcoholic.
2. Very bad temper, whipped his children brutally.
3. Eccentric, odd crank, lived all alone.
4. Nervous temperament, easily frightened, insane at menopause, committed suicide.
5. Two daughters have melancholy spells.
6. Son committed suicide.
7. Insane twice, "religious mania."
8. Convulsions during teething.
9. Suffered from asthma; died at age of 38 in an accident; son died in convulsions.
10. Died in convulsions in infancy.
11. Bad tantrums, bad temper; two children had convulsions, one was fidgety.
12. Bad temper; one son had convulsions in infancy, another is fidgety.
13. Very stubborn.
14. Peculiar temper.
15. Very alcoholic, very bad temper.
16. 29 years old, "easy going," weighs 300 pounds.
17. Stuttered, nervous.
18. Very easily excited, quick-tempered, "nags repeatedly."
19. Nervous, gets confused easily; when pregnant imagined things; has melancholy spells.
20. 15 years old.
21. Dementia præcox, hebephrenic.
22. Eight years old.

CHART LVII. M. B. CASE NO. 4931.

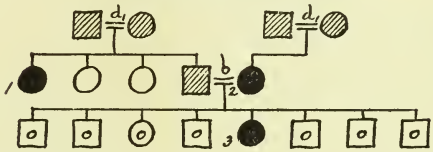


1. Had feeble-minded child.
2. Insane for one year following injury to spine, was in sanitarium, recovered without trace of organic trouble.
3. Nervous temperament.
4. Paranoic condition, in State hospital.

CHART LVIII. C. L. C. CASE NO. 6381.

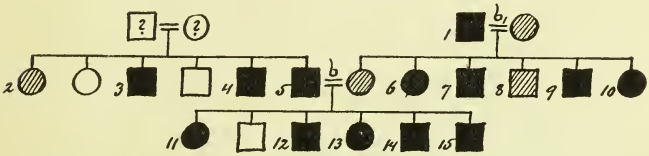
1. Eccentric, feeble-minded, epileptic.
2. Insane epileptic, in State hospital four years.
3. Insane epileptic, in State hospital.

CHART LIX. E. A. CASE NO. 6429.



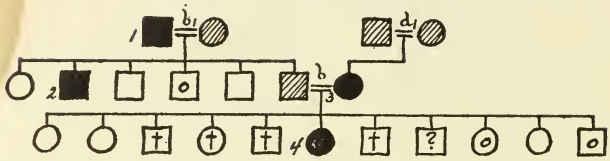
1. Feeble-minded.
2. Queer, never saw neighbors, stayed in the house, kept doors and windows locked.
3. Dementia præcox, in State hospital.

CHART LX. A. W. CASE NO. 6172.



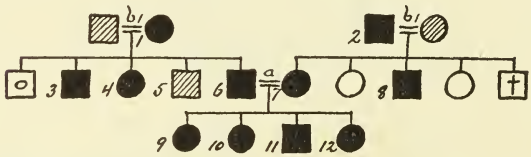
1. Very alcoholic, cranky, stubborn, convulsions.
2. Daughter nervous, " worries over nothing."
3. Highly nervous temperament, " crosses bridges before he comes to them."
4. Nervous temperament, moderately alcoholic.
5. Highly nervous temperament, irritable nature, worries over little things.
6. Fainting spells.
7. Shiftless, alcoholic, periodic sprees.
8. Children have epilepsy and fainting spells.
9. Religious crank, alcoholic.
10. Inferior make-up, possibly epileptic.
11. Worries over things; blue spells; " way up then way down."
12. Highly nervous temperament, " worries over things which never happen," alcoholic.
13. Dementia præcox, inferior make-up, in State hospital.
14. Very alcoholic.
15. Formerly very alcoholic; had a convulsion at the age of 21 years.

CHART LXI. F. M. CASE NO. 7277.



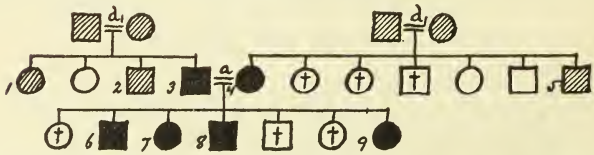
1. Periodic drinker, "a demon when drunk."
2. Rambler.
3. Delusional psychosis at menopause lasting nine years.
4. Recurrent delusional psychosis allied to manic-depressive insanity, in State hospital.

CHART LXII. M. C. CASE NO. 6868.



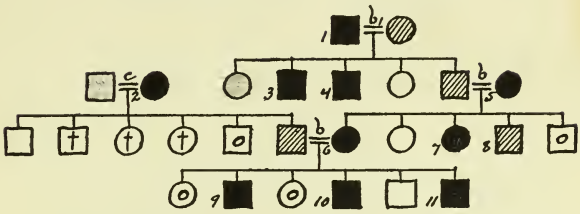
1. High-tempered, excitable, impulsive.
2. High-strung, excitable, alcoholic.
3. Alcoholic, daughter high-strung.
4. Extremely nervous, eccentric.
5. Daughter has nervous temperament, fidgety, easily excited.
6. High-strung, periodically alcoholic.
7. Had nervous prostration eleven years ago, lasted two years, never fully recovered.
8. Alcoholic, wanderer.
9. High-strung, nervous temperament.
10. Very excitable, high-strung.
11. Constitutional inferiority, in State hospital.
12. Fidgety, cannot keep still.

CHART LXIII. E. McG. CASE NO. 7180.



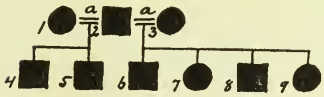
1. Had very alcoholic son who was found dead.
2. Son had neuralgia.
3. Fainting spells.
4. Fainting spells.
5. Child died in convulsions.
6. Died in convulsions in infancy.
7. Died in convulsions in infancy.
8. Dementia præcox, paranoid, in State hospital.
9. Fainting spells; child died in convulsions in infancy, other children normal.

CHART LXIV. S. W. CASE NO. 6965.



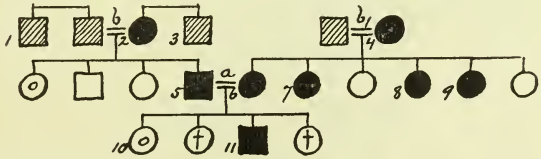
1. Epilepsy.
2. Insane for a time, recovered.
3. Epileptic imbecile.
4. Imbecile.
5. Melancholia in early married life, recovered.
6. Insane five years, was in State hospital, recovered.
7. Insomnia, neuralgia.
8. Daughter had spells of excitement.
9. Feeble-minded.
10. Dementia præcox, catatonic, in State hospital.
11. Died of marasmus, had one convulsion.

CHART LXV. E. K. CASE NO. 6529.



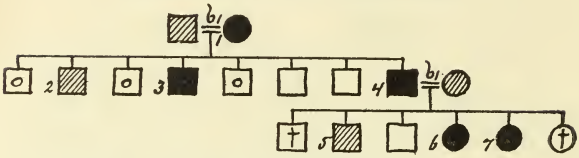
1. "Ignorant, queer."
2. Insane, was in sanitarium, committed suicide.
3. Eccentric, violent temper, ideas of persecution against neighbors and relatives.
4. Eccentric, not well-balanced.
5. Alcoholic, lazy, indolent.
6. Dementia præcox, paranoid, in State hospital.
7. Violent temper, queer, extreme dolichocephaly.
8. Defective, cranial malformation.
9. Inferior, "slow."

CHART LXVI. C. VAN C. CASE NO. 6470.



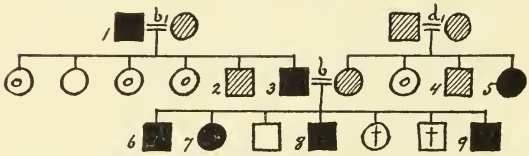
1. Some children queer.
2. Eccentric, very suspicious.
3. One daughter insane, another eccentric.
4. Nervous, irritable, quick-tempered; suffers from neuralgia.
5. Very eccentric, suspected wife of trying to poison him, later suspected others as well.
6. Insomnia for two years during menopause, extremely nervous.
7. Nervous, quick-tempered; has insane son.
8. Very irritable, nervous, quick-tempered.
9. Very irritable, nervous, quick-tempered.
10. 17 years old.
11. Constitutional inferiority, in State hospital.

CHART LXVII. A. H. CASE NO. 6605.



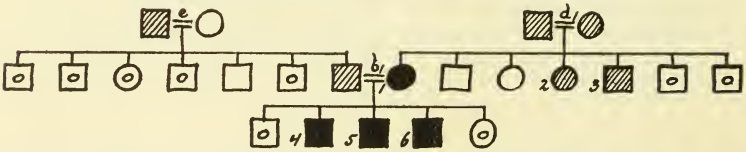
1. Eccentric, "very queer," morphine fiend.
2. Son drank heavily, was dissipated, "black sheep."
3. Very alcoholic, mind failed toward the last.
4. Religious crank, very eccentric.
5. One son and one daughter had convulsions in childhood.
6. Dementia præcox, paranoid, in State hospital.
7. Nervous temperament, high-strung.

CHART LXVIII. J. McK. CASE NO. 7121.



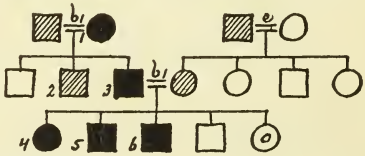
1. Insane for four or five years following money losses, died in hospital.
2. Two daughters insane.
3. Eccentric crank, high-strung.
4. One daughter insane.
5. Nervous temperament, fidgety.
6. Nervous temperament, easily excited; one daughter is nervous, imagines things; son nervous, easily irritated, periodic drinker.
7. Nervous, easily excited, easily frightened, periodically alcoholic.
8. Psychasthenia with impulses and fears, in State hospital.
9. Nervous, has choking spells, easily excited.

CHART LXIX. T. H. CASE NO. 6931.



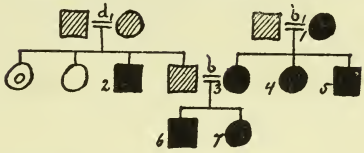
1. Nervous, emotional, "very distant"; had an attack of melancholia, sat in corner, would not eat, smelled peculiar odors, now well.
2. Child had convulsions "from teething" and died.
3. Child died in convulsions in infancy.
4. Periodic alcoholic; daughter had convulsions in infancy.
5. Dementia præcox, paranoid, in State hospital.
6. Convulsions in infancy; son nervous and had one convulsion in infancy.

CHART LXX. J. L. CASE NO. 7254.



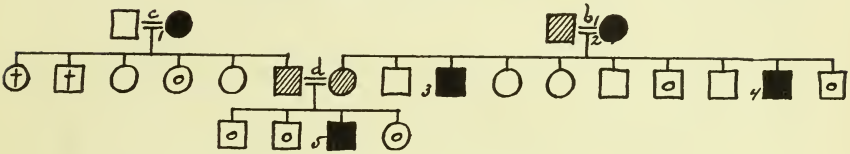
1. Senile dementia.
2. Daughter had migraine.
3. Feeble-minded.
4. Two attacks of nervous breakdown, was melancholy, recovered.
5. Alcoholic.
6. Dementia præcox, paranoid, in State hospital.

CHART LXXI. W. G. CASE NO. 6263.



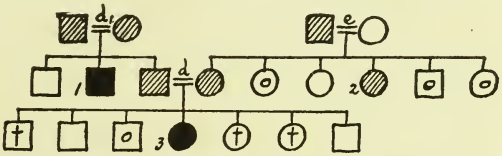
1. Eccentric, probably insane.
2. Very alcoholic.
3. Eccentric, miserly, seclusive, lived in filth, probably insane.
4. Insane, in State hospital.
5. Eccentric, very alcoholic.
6. Dementia præcox, paranoid, in State hospital.
7. Miserly, "like her mother," had spells of yelling, insane.

CHART LXXII. P. S. E. CASE NO. 6794.



1. Had spells of depression at 25 and 41 years respectively, would not talk, recovered each time.
2. Depressed, hypochondriacal.
3. Always worried about his health, imagined he had heart trouble.
4. Alcoholic, "has had every disease."
5. Imbecility with maniacal attacks, in State hospital.

CHART LXXIII. A. J. G. CASE NO. 6611.



1. Insane twice, in State hospital, recovered each time.
2. Daughter had convulsions in childhood; later had "nervous collapse" due to overwork at school, was in sanitarium two weeks.
3. Dementia præcox, in State hospital.

§ 7. Conclusions.

1. The neuropathic constitution is transmitted from generation to generation in the manner of a trait which is, in the Mendelian sense, recessive to the normal condition. Rules of theoretical expectation are accordingly as follows:

a. Both parents being neuropathic, all children will be neuropathic.

b. One parent being normal, but with the neuropathic taint from one grandparent, and the other parent being neuropathic,

half the children will be neuropathic and half will be normal but capable of transmitting the neuropathic make-up to their progeny.

c. One parent being normal and of pure normal ancestry and the other parent being neuropathic, all the children will be normal but capable of transmitting the neuropathic make-up to their progeny.

d. Both parents being normal, but each with the neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable of transmitting the neuropathic make-up to their progeny, one-half will be normal but capable of transmitting the neuropathic make-up, and the remaining one-fourth will be neuropathic.

e. Both parents being normal, one of pure normal ancestry and the other with the neuropathic taint from one grandparent, all the children will be normal, half of them will be capable, and half not capable of transmitting the neuropathic make-up to their progeny.

f. Both parents being normal and of pure normal ancestry, all the children will be normal and not capable of transmitting the neuropathic make-up to their progeny.

2. Various clinical neuropathic manifestations bear to one another the relationship of traits of various degrees of recessiveness; in a most marked way recoverable psychoses, though recessive as compared with the normal condition, are dominant over epilepsy and allied disorders.

3. Various other clinical neuropathic manifestations bear to one another the relationship of neuropathic equivalents; that is to say, they are conditions of the same degree of recessiveness varying in their clinical manifestations with the personality of the subject, environmental conditions, etc.

4. All the neuropathic children which result from a mating of the fourth type (both parents normal, but each with the neuropathic taint from one grandparent) can have theoretically only equivalent defects and not defects of different degrees of recessiveness.

5. Among the actual results from such matings the following have been met with:

a. Brothers and sisters suffering from clinically identical neuropathic manifestations.

b. Psychosis in one subject and peculiar or abnormal disposition, but no actual psychosis, in brothers or sisters.

c. Psychosis in one subject and isolated but clinically related symptoms in brothers or sisters; we find with particular frequency dementia præcox = fainting spells or convulsions in childhood.

d. Psychoses clinically not known to be related: senile deterioration = peculiar hysteriform psychoses.

6. Neuropathic conditions show only in about one-fourth of the cases indications for commitment to sanitariums or public institutions. The total incidence or neuropathic conditions may be roughly estimated as affecting between 1.5 and 2 per cent of the general population.

7. It is further estimated that about 30 per cent of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors and are capable under certain conditions of transmitting the neuropathic make-up to their progeny.

Acknowledgments.

Many persons have assisted us in various ways in collecting data for our study. We are indebted above all to our informants who have confided to us most intimate family secrets for a purely altruistic purpose.

We owe a large debt of gratitude to Dr. William Austin Macy, the superintendent of this hospital, whose unfailing sympathy with the spirit of scientific research has made possible the present study.

And we are also indebted to Dr. Charles B. Davenport, of the Carnegie Institution of Washington, for some suggestions, a good deal of general advice, and actual assistance.

American Breeders' Association—Eugenics Section

DAVID STARR JORDAN, Chairman. C. B. DAVENPORT, Secretary

The Eugenics Record Office

Cold Spring Harbor, Long Island, N. Y.

ESTABLISHED in October, 1910, this office aims to fill the need of a clearing house for data concerning "blood lines" and family traits in America. It is accumulating and studying records of mental and physical characteristics of human families to the end that the people may be better advised as to fit and unfit matings. It issues blank schedules (sent on application) for the use of those who wish to preserve a record of their family histories.

The Eugenics Section and its Record Office are a development from the former committee on Eugenics, comprising well-known students of heredity and humanists; among others Alexander Graham Bell, Washington, D. C.; Luther Burbank, Santa Rosa, Cal.; W. E. Castle, Harvard University; C. R. Henderson, University of Chicago; Adolf Meyer, Johns Hopkins University; J. Arthur Thomson, University of Aberdeen; H. J. Webber, Cornell University; Frederick A. Woods, Harvard Medical School. The work of the Record Office is aided by the advice of a number of technical committees. Its superintendent is H. H. Laughlin, Cold Spring Harbor, N. Y., to whom correspondence may be addressed.

PUBLICATIONS

Bulletin No. 1. Heredity of Feeblemindedness. H. H. Goddard, April, 1911. 10 cents.

Bulletin No. 2. The Study of Human Heredity. C. B. Davenport, H. H. Laughlin, David F. Weeks, E. R. Johnstone, Henry H. Goddard, May, 1911. 10 cents.

Bulletin No. 3. Preliminary Report of a Study of Heredity in Insanity in the Light of the Mendelian Laws. Gertrude L. Cannon and A. J. Rosanoff, May, 1911. 10 cents.

Bulletin No. 4. A First Study of Inheritance in Epilepsy. C. B. Davenport and David F. Weeks, Nov., 1911. 15 cents.

The Lord Baltimore Press
BALTIMORE, MD., U. S. A.

Eugenics Record Office

BULLETIN No. 6

THE TRAIT BOOK

By C. B. DAVENPORT

With a Colored Frontispiece and One Text Figure

Cold Spring Harbor, N. Y.
February, 1912

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no. 6

THE TRAIT BOOK

In the study of human heredity it has first of all to be recognized that progress will be made only as traits are studied one at a time. The modern science of heredity, indeed, seeks as the element of study the "unit character." What are unit characters can, however, be told only by breeding experiments in which the true units reveal themselves as relatively, if not absolutely, constant, unalterable, indivisible things. On the other hand, many apparently simple traits are shown by "hybridization" or the mating of unlike parents, to be complexes of unit characters. The first step in the resolution of human traits is, then, a primary rough analysis into fairly simple traits and, secondly, the study of the behavior of these traits in heredity. It is the purpose of this list to afford a list based on such a rough analysis.

Aside from its possible value in the analysis of human heritable characters this list has been called forth by two very practical needs. The Eugenics Record Office is collecting data concerning human inheritance and indexing the data collected. The need early arose for a list of traits that were to be indexed, and also, for the "field workers" of a list of traits whose inheritance they were to study on the field. Particularly was it found that the reports of field workers at the beginning of their work, and for some time thereafter suffered, from a paucity of vocabulary. Persons were returned as "smart," or "defective," or "feeble-minded," or "peculiar." In some cases no further analysis was possible, but in most cases the vagueness of the terminology was due to an insufficiency of vocabulary and lack of appreciation of the possible content of the situation. This deficiency it is hoped the present booklet will help supply. In the second place, in the work of indexing data, it was found to be necessary to adopt a standard list of traits. The following is the list in use.

The arrangement of the traits has been given much attention. A logical and an alphabetical classification are both necessary and both are afforded in this list. It was early decided to assign class numbers to the traits to save time in reference. The advantages of a decimal classification seemed to the compiler obvious enough to warrant its use here. Ten fundamental classes are erected and the traits arranged in each of them in ten divisions and subdivided in the same way. To allow of expansion all classification divisions are not always utilized. Indeed, as a tentative list to which it is expected additions will be made, ample space for expansion in the form of double leading and the wide margins is provided. The criticism may be made that not all the traits, especially the diseases, given here have

any hereditary basis. It is not affirmed that this is the case and yet it can not be denied that all have an hereditary basis. Even tuberculous, syphilis, and the plague are the product of a specific germ acting on a susceptible protoplasm and it is this susceptibility that is the inheritable factor. In any case this list of diseases is to be used to discover in how far diseases have an inheritable basis.

In the hope that not only the Eugenics Record Office and its field workers, but also collaborators and State and institution recording officers may find this list of value, and soliciting criticism, this book is sent forth.

CHAS. B. DAVENPORT.

Cold Spring Harbor, Jan. 1, 1912.

ACKNOWLEDGMENTS

In preparing this list of traits use has been made of preëxisting lists that seemed adapted to its purpose. The Section 08, General Diseases, is taken from the corresponding section of the International Classification of Causes of Sickness and Death (Bureau of the Census, Washington, 1910). The numbers assigned to terms in that list have been used here with the prefix 08, except that it seemed desirable, for practical purposes, to have 083 and its subdivisions (as far as 0835) stand for tuberculosis in its different forms, and 084 and subdivisions for cancer. This involves, also a new assignment of numbers, 47 to 50, which in this list become 0850 to 08506. The section 09, Occupations, is based on the list employed by the Census Bureau, but special adaptations to the needs of our system of classification have been freely made. Under Criminality, 35, the Government classification is the basis of ours. Section 4, Mental Traits, has caused much thought and is extremely tentative. It was submitted to two busy psychologists, Professor E. L. Thorndike and Professor R. M. Yerkes, and while they made valuable suggestions they are in no way responsible for the crudities of the list. In the lists of diseases the census nomenclature is closely followed, but some synomyms are given and indexed. After this list was prepared we had access to the latest edition of the Census publication, "Manual of the Internation List of Causes of Death, 1911."

The index was prepared by Mr. W. F. Blades, Editorial Secretary at the Eugenics Record Office.

PLATE I

A. Pigment of Choroid Coat and Pigment of Iris Absent. 1. The Albino eye. Red from unobscured blood vessels.

B. Pigment of Choroid Present.

α. Iris without True Pigment. 2. Blue. Due to a purple layer on back of eye.

β. Iris with True Pigments.

a. Lipochrome or yellow pigment. 3. Green or cat eye. Yellow pigment on blue background.

b. Melanic or black pigment. 4. Hazel or gray eye. Dilute brown pigment around pupil only.

5. Brown eye. Melanic pigment; various shades from various dilutions.

6. Black eye. An abundance of melanic pigment.

EYE COLORS IN MAN

PART I. LIST OF TRAITS

SYNOPSIS OF CLASSIFICATION

0 —General Traits
08—General Diseases
09—Occupations
1 —Integumentary System
2 —Skeletal System
25—Muscular System
3 —Nervous System
35—Criminality
4 —Mental Traits
43—Movements
5 —Sense Organs
6 —Nutritive System
7 —Respiratory System
8 —Circulatory System
85—Lymphatic System
9 —Excretory System
94—Reproductive System

MARGINAL SIGNS.

The direction: "Record" applies to the work of indexing data.

* Record all affected persons whenever the disease occurs in two persons of one family.

† Record all affected persons whenever the disease occurs in four persons in the family.

‡ Record all persons who have been twice affected with this disease.

D Do not record the unaffected ancestors of an affected person. Field workers and collaborators should extend pedigrees of this trait back, along the *"direct line"* of ancestry, as far as possible.

R Record birthplace and maiden names of female relatives (as well as male) of affected person or person with the trait. Field workers and collaborators should extend these pedigrees as far as possible to *collateral* branches.

0. GENERAL TRAITS

	01	—DEVELOPMENT
R	012	—Retarded
	014	—Normal
	016	—Acclerated
	02	—ADULT STATURE
R	022	—Gigantism-Acromegaly
	024	—Dwarfism
	03	—ADULT WEIGHT
R	032	—Obesity-corpulency
	034	—Slenderness
D	035	—Short and Stout
DR	036	—Tall and Stout
DR	037	—Short and Slim
R	038	—Tall and Slim

Record all	Males	Females
over	75″ (190 cm)	70″ (178 cm)
under	63″ (160 cm)	50″ (127 cm)

Record all	Males	Females
over	200 lbs (90 kg)	155 lbs (70 kg)
under	135 lbs (60 kg)	100 lbs (45 kg)

042 —Physical Activity (Record matings low and high and low and low)

043 —Physical Strength (Record matings low and high and low and low)

044 —Physical Beauty

048 —Bilateral Movements

0482 —Arm Folding, right hand over left arm

0483 — under left arm

0484 —Hand clasping, uppermost thumb right

0485 — left

0486 —Finger clasping, uppermost thumb right

0487 — left

05 —FECUNDITY

051 —Size of Family (Record all over 10 children

053 —Twinning (Record all twins)

0532 —Identical Twins

0534 —Reciprocal Twins

0536 —Cosmobia

06 —Consanguinity in Marriage
07 —VITALITY
072 —Still Birth
074 —Marasmus, infantile wasting
† 075 —Infant Deaths—Under two years
077 —Longevity Record:—
0772 —Great—At least 5 of gr. parents and parents attain 50 years
0774 —Slight—At least 5 of gr. parents and parents fail to attain 50 years
0776 —Extreme—Every person attaining 90 years

08. GENERAL DISEASES.

*‡ 0801 —Typhoid fever
*‡ 0802 —Typhus fever
0803 —Relapsing fever
† 0804 —Malaria, intermittent fever, remittent fever
†‡ 0805 —Small pox
‡ 0806 —Measles
†‡ 0807 —Scarlet fever
‡ 0808 —Whooping cough
†‡ 0809 —Diphtheria, membranous croup
†‡ 08095—Croup
† 0810 —Influenza
0811 —Miliary fever
*‡ 0812 —Asiatic cholera
* 0813 —Cholera nostras
* 0814 —Dysentary
* 0815 —Plague, bubonic
* 0816 —Yellow fever
* 0817 —Leprosy
*‡ 0818 —Erysipelas
0819 —Other epidemic diseases
‡ 08192—Mumps
‡ 08194—German measles
* 0820 —Septicæmia, pyæmia, infection, septic infection

* 0821 —Glanders
* 0822 —Anthrax
* 0823 —Rabies, hydrophobia
* 0824 —Tetanus
* 0825 —Mycoses
* 0826 —Pellagra
* 0827 —Beriberi
R†‡ 083 —TUBERCULOSIS
08311—Tuberculosis of lungs, phthisis, pneumonia, consumption
* 08312—Acute miliary tuberculosis, or galloping consumption
* 08313—Laryngeal tuberculosis
* 08314—Tuberculous meningitis
08315—Lupus, skin tuberculosis
* 08316—Abdominal tuberculosis, tuberculous peritonitis
* 0832 —Pott's disease, spinal tuberculosis
* 0833 —White swellings, tuberculosis of the joints
* 0834 —Tuberculosis of other organs (see also other organs)
* 0835 —Disseminated tuberculosis, scrofula
* 0836 —Rickets
* 0837 —Syphilis
* 0838 —Gonococcus infection
R 084 —CANCER
R 0841 —Of alimentary tract
R* 08411—Buccal cavity, smoker's cancer
R* 08412—Stomach, liver, pylorus
R* 08414—Intestines, rectum
R 08415—Peritoneum
R 08416—Bladder
R* 0842 —Female genital organs
R* 0843 —Breast
R* 0844 —Skin, epithelioma
R 0845 —Lip
R 0846 —Face
R 0847 —Eye
* 0849 —Tumors—Classify by organ affected

085 —RHEUMATISM
* 08501—Rheumatism, acute muscular
* 08502—Rheumatism, chronic; Arthritis deformans
* 08503—Gout
* 08504—Scurvy
* 08505—Diabetes mellitus
D 08506—Diabetes insipidus
* 08508—Seasickness
* 0851 —Exophthalmic goitre
* 0852 —Addison's disease, bronze disease
* 0853 —Leukæmia—Hodgkin's disease
* 0854 —Anemia
08542—Pernicious anemia
08544—Chlorosis
0855 —Toxemia, infectious fever
08555—Fatty degeneration
0856 —Alcoholism
0858 —Chronic occupational poisonings
0859 —Other chronic poisonings, drug poisonings, nicotinism

09. OCCUPATIONS.

091 —AGRICULTURAL PURSUITS
0911 —Farmers and planters
0912 —Gardeners, florists, nurserymen
0913 —Dairymen and dairywomen
09135—Apiarists
0914 —Horse raisers
0915 —Poultry raisers
0916 —Cattle and other stock raisers
0917 —Lumbermen, etc.
0918 —Agricultural laborer
0919 —Other agricultural pursuits
092 —PROFESSIONAL SERVICE
0921 —ENTERTAINERS
09211—Actors
09212—Showmen
09213—Theatrical managers, etc.

09214—Instrumental musicians
09215—Singers
09216—Dancers
0922 —ARTISTS, ETC.
09221—Architects
09222—Designers and draftsmen
09223—Sketch artists
09224—Painters
09225—Sculptors
0923 —MEDICAL MEN
09231—Physicians
09232—Ophthalmologists
09233—Aurists
09234—Neurologists
09235—Pediatrists
09236—Orthopedists
09237—Surgeons (other)
09238—Dentists
09239—Veterinarians
0924 —ENGINEERS
09241—Civil
09242—Surveyors
09243—Mechanical
09244—Electrical
09245—Sanitary
09246—Mining
09247—Chemical, and chemists and metallurgists
09248—Inventors
09249—Other engineers
0925 —LAWYERS AND POLITICIANS
09251—Corporation lawyers
09252—Criminal lawyers
09253—Pleaders and orators
09254—Judges
09255—Officials of government
09259—Other politicians
0926 —LITERARY PERSONS
09261—Authors
09262—Journalists

09265—Librarians
0927 —Clergymen
0929 —Other professions
093 —TEACHERS AND INVESTIGATORS
0931 —Language and literature
0932 —Humanities
09321—History
09322—Politics
09323—Economics
09324—Sociology
09325—Business
09327—Philosophy
09328—Education
0933 —Fine arts
0934 —Mathematics
0935 —Astronomy
0936 —Physics, chemistry and engineering
0937 —Biology
09375—Anthropology
0938 —Geology, mineralogy and metallurgy
0939 —Other subjects
094 —DOMESTIC AND PERSONAL SERVANTS
0941 —General laborers
0942 —House servants, janitors, waiters
0943 —Watchmen, police, firemen
0944 —Soldiers
0945 —Nurses and midwives
0946 —Laundrymen and laundrywomen
0947 —Caterers, keepers of hotels, boarding houses, keepers saloons, restaurants
0948 —Barbers and hairdressers
0949 —Others
095 —TRADE
0951 —Merchants and dealers
0952 —Clerks and copyists and mail carriers

0953 —Messengers, errand boys, etc.
0954 —Stenographers and typists
0955 —Telephone and telegraph operators
0957 —Salesmen and saleswomen
0958 —Undertakers
096 —TRANSPORTATION
0961 —Hucksters and peddlers
0962 —Draymen, hostlers and stable keepers
0963 —Shipping clerks and porters
0964 —Boatmen and sailors
0965 —Employees of steam and trolley lines
097 —MANUFACTURING PURSUITS
0971 —MINERAL PRODUCTS
09711—Brick and tile makers
09712—Potters
09713—Glassworkers
09714—Stone cutters
09715—Miners and quarrymen
09716—Oil work
09717—Chemical work
0972 —ANIMAL PRODUCTS
09721—Fishing
09722—Leather workers
0973 —METAL MANUFACTURERS
09731—Blacksmiths and workers in iron and steel
09732—Machinists
09733—Tool workers
09734—Wheelwrights
09735—Wire workers
09736—Clock and watch workers
09737—Gold and silver workers
09739—Other metal workers
0974 —BOOK MANUFACTURERS
09741—Binders
09742—Lithographers
09743—Electrotypers and stereotypers
09744—Compositors

09749—Other book manufactories
0975 —FOOD PREPARERS
09751—Bakers
09752—Butchers
09753—Confectioners
09754—Millers
09755—Canners
09756—Bottlers of beverages
09757—Brewers and distillers
09759—Other food preparers
0976 —WOOD WORKERS
09761—Cabinet makers
09762—Coopers
09763—Basket makers
09764—Piano makers
09765—Saw-mill workers
0977 —TEXTILE OPERATORS
09771—Mill and bleachery operators
09772—Lace makers
09773—Dressmakers
09774—Seamstresses
09776—Hat makers
09777—Milliners
09778—Tailors
09779—Other textile operators
0978 —MISCELLANEOUS INDUSTRIES
09781—Manufacturers and officials
09782—Charcoal, coke and lime burners
09783—Stationary engineers and firemen
09784—Photographers
09785—Glove makers
09786—Model and pattern makers
09787—Tobacco operators
09788—Broom and brush makers
0979 —OTHER INDUSTRIES
09791—Artificial flower makers
09792—Butter makers
09793—Candle makers
09794—Piano and organ tuners
09795—Straw workers

09796—Turpentine distillers
09797—Umbrella makers
09798—Well borers
09799—Others
098 —BUILDING TRADES
0981 —Carpenters
0982 —Masons
0983 —Painters
0984 —Paperhangers
0985 —Plasterers
0986 —Plumbers and steam fitters
0987 —Roofers and slaters
0989 —Other mechanics
099 —OTHER OCCUPATIONS

1. INTEGUMENTARY SYSTEM

(Record § only when all of family: ff, fm, mf, mm, f and m and children are alike)

11 —SKIN
112 —Thickness
113 —Tylosis
114 —Keratosis
1145 —Horns
116 —Transparency, peculiarities in
117 —Circulation, peculiarities in
12 —PIGMENTATION
122 —Melanism
D 1220 —Negroid
DR 1221 —Mezzotint
D§ 1222 —Brunet
DR§ 1223 —Intermediate
R§ 1224 —Blond
DR 1225 —Mulattoes
R 124 —Albinism
1242 —Partial
1244 —Total
DR 126 —Xanthism (reddish-yellow pigmentation)
127 —Freckling

	13	—PAPILLARY RIDGES
	131	—Finger prints
	132	—Palm lines
	14	—HAIR
	141	—GENERAL
R	1415	—Hypertrichosis—heavy growth of hair
R	1417	—Hairlessness
	142	—FORM
D	1422	—Wooly
D	1424	—Curly
DR	1426	—Wavy
R*	1428	—Straight
	144	—Abnormal forms of hair
D	1442	—Monilithrix—beaded hair
	146	—HAIR COLOR (Table I)

TABLE I.

HAIR COLOR TABLE. (*Rept. Brit. A. A. Sci., 1908*).

	SYSTEM A		SYSTEM B, *preferred*
BLOND	Light yellow Whitish yellow	FA	Yellow Flaxen Golden
	Ash blond Gray yellow Gray brownish Light brownish Red blond	IR	Lightest browns Pale auburns (with red inconspicuous)
RED	Fiery red	RED	All shades red which approach more nearly to red than brown, yellow or flax
BROWN	Brown Dark brown Darkest brown	BROWN	Numerous shades of brown answering nearly to French chatain and chatain-clair
BLACK		DARK	French brun, darkest chatain up to
		NIGER	Darkest brown Jet black

D* 1461 —Black

* 1462 { Dark brown / Med. brown / Lt. brown / Yellow brown }

R 1463 —Flaxen

R 1464 —White

R 1465 { Dark brown red / Dark red / Bright red }

14662—Darkening with age

14664—Darkening after graying

14666—Darkening after disease

1467 —Graying

14672—Premature

14674—With age

14676—Absence of

148 —HAIRINESS

1480 —Areas

* 1481 —Scalp, peculiar

1482 —Face

14821—Eyebrows

148211—Heavy

148212—Sparse

148213—Long haired

148214—Short haired

148215—Uniting above nose

148216—Absent

14822 —Eyelashes

148222—Long

148224—Short

148226—Absent

14823 —External auditory meatus

14824 —Anterior Nares

14825 —Upper lip

148252—Amount

148254—Color

14826 —Chin

14827 —Cheeks

1483 —Arms

1484 —Axilla
1485 —Trunk
1486 —Pubes
1487 —Legs
16 —SKIN GLANDS
162 —Sebaceous
1622 —Absence
164 —Secretions
1642 —Quality
1644 —Quantity
166 —Mammary
1662 —Number
16622—Absence
16624—Polymastism
1664 —Position
1666 —Secretions
16662—Quality
16665—Quantity
18 —NAILS
181 —Malformation
182 —Absence of
183 —Shedding
19 —DISEASES: SUSCEPTIBILITY TO
192 —Baldness—alopecia
1922 —Local
1924 —General
1926 —Premature
1928 —Senilis
193 —Eczema
1932 —Gouty eczema
(See tuberculosis of skin, 0915)
D 194 —Epidermolysis bullosa, dermatitis bullosa
195 —Gangrene, noma
196 —Herpes, fever blisters, cold sores
1962 —Psoriasis, itch
1965 —Ichthyosis
197 —Birthmarks
D 1975 —Telangiectases, nevus

198 —Warts and moles
(Erysipelas, 0918)

2. SKELETAL SYSTEM

20 —GENERAL
201 —Large-boned
202 —Intermediate
203 —Small-boned
204 —Flexible-boned
205 —Rigid-boned
206 —Brittle-boned
207 —Anchyloses, stiffness of joints
209 —Exostoses, bony growths
21 —APPENDICULAR SKELETON
D 210 —Polydactylism, extra digits
D 211 —Syndactylism, lobster-claw, webbed fingers
D 212 —Absence of fingers
213 —Double jointedness of fingers
214 —Brachydactyly, short-fingeredness
215 —Relative length of fingers
216 —Crookedness of toes or fingers
217 —Sinisterity—left handedness
218 —Ambidexterity
219 —Short limbs
22 —CRANIAL
221 —Hydrocephaly, water on the brain
222 —Microcephaly
223 —Brachycephaly (broad, short headed)
224 —Mesocephaly
225 —Dolichocephaly (narrow, long headed)
226 —Chamæprosipes (short, low face)
227 —Leptoprosipes (long, high face)
228 —Chamæcephaly, receding forehead
229 —Prognathism
23 —VERTEBRAL
231 —Spina bifida

232 —Scoliosis, lateral curvature of spine
233 —Kyphosis, backward curvature of spine, hump-back
234 —Lordosis, forward curvature of spine
235 —Longicoccyx.
236 —Ribs (variation in form or number)
24 —GIRDLE
242 —Shoulder girdle
243 —Clavicles (absence or deformed)
244 —Scapula ("scaphoid," etc.)
246 —Pelvic girdle

25. MUSCULAR SYSTEM

25 —GENERAL
D 252 —Muscular atrophy
R 254 —Muscular rigidity, slow reaction (Thomsen's disease)—myotomia congenita
255 —Ataxia
256 —Trembling (see also nervous system, paralysis agitans, 335) [rheumatism (see 095)]
26 —SUPERFICIAL
262 —Wrinkling
R 264 —Hernia
27 —FACIAL
271 —Wrinkles
272 —Frowns
273 —Functioning scalp muscles
274 —Special muscles
275 —Chin dimple
276 —Cheek dimple
28 —NOSE
281 —Platyrhinia—broad nose
282 —Mesorhinia
283 —Leptorhinia—long nose
284 —Aquiline—Roman nose
285 —"Pug"

29 —EXTERNAL EAR—PINNA
291 —Helix
2911 —Descending helix
2912 —Transverse helix
2913 —Inner helix
2914 —Darwinian tubercle
2915 —Navicular fossa
292 —Antihelix
2922 —Upper ramus
2924 —Lower ramus
2926 —Oval fossa, elevation, relative to helix
293 —Lobule
2932 —Adherency
2934 —Lobular fold
2936 —Antitragus
2938 —Intertragial fossa
294 —Tragus
295 —Upper concha
297 —Lower concha
299 —General position

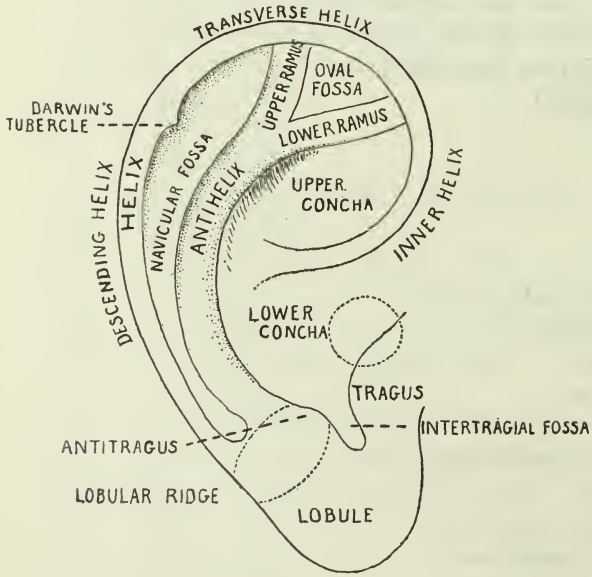

Fig. 1.

3. NERVOUS SYSTEM

30 —GENERAL
R 301 —Convulsions
3012 —Infantile
302 —Neuralgia, neuritis
31 —BRAIN AND SPINAL CORD, GENERAL
311 —Congenital malformation
R 312 —Anencephaly
313 —CONSTITUTIONAL INFERIORITY
R 3131 —Idiocy
R 3132 —Imbecility, F
R 3134 —Feeble-mindedness, F
DR 3137 —Backwardness, moronia
R 314 —Epilepsy, E
DR 316 —INSANITY, I
3160 —Puerperal
3161 —Arteriosclerotic insanity
R 3162 —Dementia præcox
R 3163 —Melancholia, involutional
R 3164 —Manic-depressive insanity
3165 —Paranoia
3166 —Senile dementia
3167 —General paralysis—paresis; brain syphilis
3168 —Delirium tremens, alcoholic insanity
3169 —Traumatic insanity
317 —CONSTITUTIONAL PSYCOPATHIC STATE
3171 —Narcotism
3172 —Nymphomania
3174 —Sex immorality, Sx
3176 —Sex perversion
318 —NEUROTIC CONDITION
3181 —Chorea—St. Vitus' dance
31812—Huntington's chorea
3183 —Hysteria
3184 —Migraine, M
3185 —Wanderlust, W

3187 —Eccentricity
319 —IMPEDIMENT IN SPEECH
3191 —Stammering
3192 —Stuttering
3194 —Lisping
321 —Cerebral hemorrhage
322 —Cerebral abcess
323 —Softening of the brain
324 —Encephalitis
325 —Meningitis
326 —Locomotor ataxia
327 —Myelitis
328 —Poliomyelitis (infantile paralysis)
33 —SPINAL NERVES
DR 331 —Sclerosis
332 —Hematomyelia
334 —Spinal paralysis
335 —Paralysis agitans
R 336 —Paralysis of infancy, Friedreich's disease, progressive muscular atrophy. See 252
341 —PARALYSIS (unspecified)
3412 —Senile paralysis
3414 —Hemiplegia
3415 —Facial paralysis
3416 —Paraplegia
R 35 —CRIMINALITY
351 —CRIME AGAINST CHASITY
3511 —Adultery
3512 —Bigamy and polygamy
3513 —Crime against nature
3514 —Fornication
3515 —Incest
3516 —Prostitution
3517 —Seduction
352 —CRIME AGAINST PUBLIC POLICY
3521 —Counterfeiting
3522 —Disorderly conduct
3523 —Drunkenness
3524 —Incorrigibility

3525 —Perjury
3526 —Truancy
3527 —Violating liquor laws
3528 —Violating U. S. laws
3529 —Vagrancy
353 —CRIME AGAINST THE PERSON
3531 —Assault
3532 —Homicide
3533 —Rape
3534 —Robbery
3535 —Suicide

3535
- 1—By poison
- 2—By hanging
- 3—By shooting
- 4—By drowning
- 5—By jumping
- 6—By cutting or stabbing
- 9—By other means

354 —CRIME AGAINST PROPERTY
3541 —Arson
3542 —Burglary
3543 —Embezzlement
3544 —Fraud
3545 —Forgery
3546 —Larceny
3547 —Malicious mischief and trespass

4. MENTAL TRAITS

In descriptions of mental traits it will be found useful to attempt to assign grades to qualities as follows:

1. Lowest grade or absence, say 1 per 1,000 of the whole population.
2. Distinctly below the average—1 in 50.
3. Average or ordinary grade.
4. Distinctly above the average—1 in 50 or more.
5. Highly exceptional grade—1 in 1,000 of the whole population.

41 —INTELLECTUAL FACULTIES
410 —GENERAL MENTAL ABILITY
411 —Attention
412 —Comparison
413 —Curiosity
414 —IMAGINATION
4141 —Matter-of-fact
4143 —Phantastic
4145 —Romantic
4147 —Visionary
4148 —Suggestiveness (unconscious cerebration)
415 —MEMORY vs amnesia
4152 —Retentiveness
4154 —Logicalness
4156 —Selectiveness
416 —ORGANIZATION
4162 —Analysis
4165 —System
417 —REASONING AND LOGICALNESS
4172 —Causation
4174 —Reflection
4176 —Relation, sense of:
41761—Language
41762—Locality
41763—Number
41764—Order
41765—Time
41766—Tune
418 —Judgment
419 —SENSE-PERCEPTION
4190 —General
4191 —Temperature
4192 —Weight
4193 —Touch
4194 —Taste
4195 —Smell
4196 —Sight
4197 —Sound (tone-deafness?)
4199 —Sense-Imagery

42 —FEELINGS
421 —GENERAL TASTES
4211 —Love of beauty
42112 —Of form
42114 —Of color
42116 —Of rhythm
4212 —Detail vs generalization
4213 —Excitement vs quiet
4214 —Knowledge vs lack of intellectual interests
4215 —Ludicrousness vs absence of sense of humor
4216 —Sublimity vs stolidity
4217 —Truth vs deception
422 —SPECIAL PHOBIAS
4222 —Dirt
4224 —Fire, etc.
423 —TASTES FOR SPECIAL OCCUPATIONS (Enter under Occupations); also
4231 —Study
4232 —Reading
42322 —General literature
42324 —Poetry
42326 —Prose
423261—Artistic
423262—Historical
423263—Philosophical
423264—Religious
423265—Scientific, etc.
42328 —Language
4233 —Mathematics
42333 —Mathematical problems
42335 —Statistics
4234 —Form and color work
42343 —Drawing
42345 —Modeling
42347 —Painting
4235 —Music and rhythm
42352 —Singing
42355 —Playing musical instruments

42357 —Dancing
4236 —Mechanical work
42361 —Manual work
42363 —Mechanism
42365 —Inventiveness
4237 —Play and athletics
4239 —Life in special environments
42391 —Home life
42392 —Rural life
42393 —Urban life
42394 —Life on seas vs the land
42395 —Travel } vs home-staying
42396 —Exploration }
42397 —Military life
424 —SPECIAL PLEASURES OR PASSIONS
4241 —Eating
4242 —Taking stimulants
42421 —Use of Tobacco
42422 —Use of Alcohol
42423—Use of narcotics
4243 —Gambling
4244 —Money
42442—Getting
42444—Hoarding
4245 —Power, social
4247 —Sex indulgence
425 —EGOISTIC
42511—Anger (liability to) vs unruffledness
42512—Anxiousness vs lightheartedness
42513—Boldness vs timidity
42514—Conceit vs humility
42515—Confidence vs despair
42516—Contemptuousness vs respectfulness
42517—Elation vs depression
42518—Euphoria vs dread
42520—Egoistic love
42521—Love of action
42522—Love of approbation
42523—Love of sympathy
42524—Love of power

42531—Self-confidence (in judgments)
42532—Sensitiveness
42541—Pride
42542—Vanity
426 —SOCIAL
42612—Amativeness vs frigidness
42615—Benevolence vs malevolence
42617—Envy vs unenviousness
42618—Faith vs doubt
42625—Jealousness vs unjealousness
42627—Love vs hatred
42632—Openness vs secretiveness
42635—Philoprogenitiveness
42642—Trustfulness vs suspiciousness
42645—Respect vs disrespect
42647—Reverence vs irreverence
42652—Sympathy vs coldness
42655—Tenderness vs hardheartedness
43 —MOVEMENT; BEHAVIOR
431 —GENERAL TYPE OF MOVEMENT
4312 —Quickness vs slowness
4314 —Responsiveness vs unresponsiveness or aboulia
4315 —Gracefulness vs awkwardness
4317 —Stereotypy vs variableness
433 —Apprehension, quality and degree
434 —Concentration, quality and degree
435 —Imitation, quality and degree
436 —Observation, quality and degree
437 —Suggestibility, quality and degree
44 —MOVEMENTS IN RELATION TO PRODUCTIVENESS
441 —Industriousness vs indolence
4421 —Alertness vs sluggishness
4422 —Decision vs vacillation
4424 —Promptness vs procrastination
4426 —Punctuality vs tardiness
4431 —Deliberateness vs precipitousness
4432 —Discretion vs rashness
4436 —Carefulness vs carelessness

4438 —Accuracy vs inaccuracy
4439 —Thoroughness vs superficiality
4445 —Coolness in emergency vs loss of head
4461 —Resourcefulness vs lack of resource
4462 —Practicalness vs impracticalness
4463 —Definiteness of purpose vs desultoriness
4464 —Orderliness vs disorderliness
4465 —Methodicalness vs unmethodicalness
4466 —Neatness vs slovenliness
4467 —Persistence vs fickleness
4468 —Sedentariness vs wandering tendency
45 —SPECIAL ABILITIES
451 —Studying
452 —Reading (elocution)
453 —Chirography
454 —Spelling
4552 —Literary composition
4554 —Language
4556 —Sciences
4561 —Calculating
4562 —Mathematics
4563 —Drawing
4564 —Modeling
4565 —Painting
4566 —Singing
4567 —Musical composition
4571 —Mechanics
4572 —Invention
4573 —Various professions
459 —Athletics, etc.
4591 —Shooting
4592 —Riding
4593 —Rowing
4594 —Swimming
4595 —Ball-playing
45952—Tennis

45954—Golf
45956—Base-ball
45958—Foot-ball
45959—Other sports
4598 —Chess
4599 —Other games
46 —EGOISTIC (temperament)
4612 —Nervous vs phlegmatic temperament
4614 —Placidity vs irascibility
4615 —Poise } vs irritability,
4616 —Calmness } excitability
4617 —Quietness vs boisterousness
4621 —Gentleness vs violence
4622 —Optimism vs pessimism
4623 —Gratefulness vs ungratefulness
4624 —Cheerfulness vs despondency
4626 —Joviality vs melancholia
4628 —Good naturedness vs illnaturedness
4632 —Elation vs depression
4634 —Lightheartedness vs anxiousness, worry
4636 —Alternating mood vs constancy
4642 —Enthusiasm vs indifference
4645 —Earnestness vs frivolousness
4644 —Eagerness } vs { coolness
4646 —Keenness } { listlessness
4665 —Brightness vs gloominess
4666 —Sweetness vs bitterness
4667 —Contentedness vs querimoniousness
4668 —Objectiveness vs introspectiveness
47 —SELF-ASSERTION
4712 —Dignity, presence vs lack of dignity
4715 —Independence vs dependence
4717 —Originality vs imitativeness
4722 —Firmness vs instability
4725 —Initiative vs inertness
4727 —Ambition vs apathy
4732 —Enterprise vs inadventuresomeness
4735 —Forwardness vs bashfulness

4742 —Courage vs timidity, cowardice
4745 —Pluckiness vs disheartedness
4746 —Self-control vs self-indulgence
4747 —Perseverance vs capriciousness
4748 —Stubbornness vs docility
4749 —Opinionatedness vs diffidence
4750 —Combativeness } vs submissiveness
4751 —Rebelliousness }
4752 —Imperiousness vs slavishness
4755 —Constructiveness vs destructiveness
4757 —Avariciousness vs prodigality
476 —SPEECH TRAITS
4761 —Taciturnity vs volubility
4762 —Conversationableness vs unconversationableness
4763 —Restraint, coldness, vs fire
4764 —Matter-of-factness vs emotionalness
4765 —Directness vs discursiveness
4766 —Imagery vs prosaicness
4767 —Anecdoteness vs unanecdoteness
4768 —Wittiness vs dullness
4769 { Satiricalness } vs unsatiricalness
{ Ironicalness }
479 —FORESIGHT
4791 —Thrift vs improvidence
4792 —Caution vs recklessness
4793 —Economy vs extravagance
4794 —Causality vs lack of causality
48 —ALTRUISTIC BEHAVIOR
4812 —Affectionateness (toward children and animals) vs cruelty
4815 —Sympathy vs callousness
4818 —Tact vs indiscretion
4822 —Sensitiveness vs insensitiveness
4825 —Considerateness vs inconsiderateness
4827 —Civility vs incivility
4828 —Deferentialness vs rudeness
4832 —Politeness vs bluntness

4835 —Frankness vs closeness or reticence
4837 —Sincerity vs insincerity
4838 —Confidence vs suspicion
4841 —Breadth vs narrowness
4842 —Jealousy vs lack of jealousy
4843 —Suspiciousness vs unsuspiciousness, trustfulness
4845 —Self-sacrifice vs selfishness
4848 —Forgiveness vs resentfulness
4852 —Generosity vs stinginess
4853 —Loyalty vs disloyalty
4855 —Justice vs arbitrariness
4856 —Reasonableness vs unreasonableness
4858 —Credulity vs incredulity
4862 —Patience vs impatience
4865 —Ridicule vs respect
491 —Behavior Toward Society
4911 —Sociableness vs unsociableness
4912 —Gregariousness vs solitariness or seclusiveness
4913 —Geniality vs ungeniality
4914 —Diplomacy vs undiplomacy
4915 —Organizing ability
4916 —Cooperativeness vs aloofness
492 —General Ethical Behavior; morality vs immorality
4921 —Conscientiousness vs unconscientiousness
4922 —Strictness vs laxness
4923 —Honesty vs dishonesty (in property relations)
4924 —Truthfulness vs untruthfulness (in communications)
4925 —Obedience vs disobedience
4926 —Domesticity vs wildness
4927 —Religiousness vs unreligiousness
4928 —Piety vs impiety
494 —Behavior in Sex Realm
4941 —Constancy vs fickleness
4942 —Amorousness vs frigidness

4943 —Chasity vs licentiousness
4944 —Prudishness vs rakishness
4945 —Innocence vs impurity

5. SENSE ORGANS

52 —TASTE (tongue, see Nutritive System, 625)
525 —Idiosyncrases
53 —TOUCH, hypertrophy or atrophy of sense
532 —Temperature sense
534 —Weight sense
54 —SMELL (nose, see Muscular System, 28)
542 —Hypertrophy of
544 —Atrophy of
546 —Idiosyncrases
55 —HEARING (External auricle, see Muscular System, 29)
552 —Defects
5522 —Deafness
R 5524 —Deaf-mutism
R 5526 —Otosclerosis
R 5528 —Catarrhal deafness
553 —Ménière's disease
56 —SIGHT, AND ORGAN OF
560 —General eye weakness
5602 —Blindness
5604 —Imperfect sight before 45 years
5606 —Ophthalmia neonatorum
561 —EYE-BALL
5610 —Megalophthalmus
5611 —Microphthalmus
D 5613 —Glaucoma
D 5615 —Myopia
5616 —Hyperopia
5617 —Presbyopia
5618 —Astigmatism
D 5619 —Coloboma

562 —LENS
D 5622 —Cataract
D 5624 —Ectopia
563 —IRIS
5630 —Dissimilar
5632 —Color (See Table II)

TABLE II.
EYE COLOR. (*Rept. Brit. A. A. Sci., 1908*).

BLUE	Pure Blue	Light	Blue (all shades inc. darkest blue)
			Bluish gray Light gray Lightest green
		Dark	Very light hazel Yellow Green (most shades) Hazel gray Dark gray Brownish gray and all uncertain colors
BROWN	Brown Black		Brown Dark brown Black

R 56321—Blue (Record matings: blue x blue)
56322—Blue margin and brown center
D 56323—Brown
D 56324—Black
56325—Yellow blue or green
R 56326—Reddish brown
5634 —Cornea
D 56345—Degeneracy
564 —RETINA AND OPTIC NERVE
D 5642 —Atrophy optic nerve
D 5644 —Retinitis pigmentosa
D 5646 —Nightblindness
D 5648 —Colorblindness
565 —EYE MUSCLES
D 5652 —Nystagmus
5654 —Paralysis of
* 5656 —Cross-eye
D 5658 —Squint

6. NUTRITIVE SYSTEM

60 —GENERAL
609 —General diseases
6092 —Malnutrition
6094 —Dyspepsia
6095 —Constipation
61 —TEETH
611 —Absence of 2d dentition
612 —Supernumerary teeth
613 —Third dentition
615 —Absence of teeth
6152 —General
6154 —Incisors
6156 —Canines
6157 —Bicuspids
6158 —Molars
616 —Abnormal shape and size
617 —Abnormal tooth structure
6172 —Enamel
61722—Thick
61724—Thin (black teeth)
61726—Soft
61727—Hard
61728—Absent
6174 —Dentine
61741—Hard
61742—Soft
62 —MOUTH
621 —Jaw
6212 —Wide in front
6214 —Compressed in front
6216 —Triangular
622 —Palate
6222 —Low and flat
6224 —Keeled
6226 —High
6228 —Cleft
R 623 —Hare lip
624 —Uvula

6242 —Elongated
6245 —Malformed
625 —Tongue (speech, see Nervous System, 319)
6252 —Congenital malformation
6255 —Hypertrophy
6257 —Atrophy
626 —Pharynx
6261 —Congenital malformation
6263 —Tuberculosis of (enter under 09313)
6264 —Tonsilitis
6265 —Throat trouble
6266 —Adenoid growth
63 —OESOPHAGUS
632 —Congenital malformation
635 —Stricture of
65 —Stomach
651 —Congenital malformation
652 —Perversion of appetite
653 —Gastritis
655 —Ulceration
656 —Catarrh
66 —Intestine
661 —Congenital malformation of
662 —Diarrhea, infantile (under 2 years)
663 —Diarrhea (over 2 years)
664 —Dysentery
665 —Enteritis
666 —Appendicitis
67 —LIVER AND GALL BLADDER AND DUCT
671 —Atrophy
672 —Cirrhosis
673 —Fatty
674 —Functional derangement
676 —Biliary calculi—gall stones
677 —Cholangitis
678 —Jaundice
679 —Cholecystitis

68 —RECTUM
681 —Hemorrhoids—piles
682 —Fistula in rectum
683 —Fistula in ano
69 —Pancreas

7. RESPIRATORY SYSTEM

70 —General
71 —MUCOUS MEMBRANE DISEASES
712 —Colds—rhinitis (Record families with liability in all children)
713 —Catarrh (Record families with liability in all children)
714 —Nasal-tumor
717 —Hay fever
D 718 —Epistaxis—nose-bleed
719 —Sinusitis
72 —LARYNX
721 —Laryngitis
722 —Aerocele—open gillslits
723 —Tuberculosis of (enter under 09313)
724 —Congenital malformation
725 —Vocal cords
73 —LUNG
[tuberculosis; enter under tuberlosis, 0931]
732 —Emphysema
734 —Pneumonia (Record all persons affected over 2 times; and all families with over 3 persons affected). When possible differentiate the kind of pneumonia.
74 —BRONCHI AND TRACHEA
742 —Acute bronchitis
744 —Chronic bronchitis
746 —Asthma
75 —Pleurisy
76 —Pulmonary congestion
77 —Gangrene of lung

8. CIRCULATORY SYSTEM

80 —GENERAL
802 —Congenital malformations
804 —"Heart disease" (Record all fam. with over 2 persons affected)
81 —BLOOD
D 8102 —Hemophilia
8103 —Leukæmia (enter under 0853)
8104 —Progressive pernicious anemia (enter under 08542)
8106 —Anemia, simple (enter under 0854)
8108 —Chlorosis (enter under 08544)
82 —HEART
8211 —Congenital malformation of
8212 —Functional enlargement
8214 —Palpitation
8216 —Anguina pectoris
8218 —Pericarditis
822 —Endocarditis, chronic
823 —Endocarditis, acute
825 —Aneuryism
826 —Myocarditis
827 —Fatty degeneration
828 —Rupture
829 —Embolism coronary artery
83 —VESSELS — ARTERIES AND VEINS
831 —Congenital malformation
832 —Aneurysm
833 —Atheroma
834 —Arteriosclerosis
836 —Embolism and thrombosis
837 —Varicose veins, by site
838 —Inflammation of veins, phlebitis

85. LYMPHATIC SYSTEM

850 —General
8502 —Lymphangitis
8504 —Peritonitis
85042—General

85044—Local
86 —Spleen
862 —Splenitis
R 864 —Enlargement of
87 —Thymus gland
88 —Thyroid gland
R 882 —Cretinism (see also 024)
884 —Goitre
[exophthalmic goitre; see 0851]
888 —Myxœdema

9. EXCRETORY SYSTEM

90 —GENERAL
901 —Excretions
R 902 —Alkaptonuria
903 —Chyluria
904 —Cystinuria
906 —Hematuria
907 —Hemoglobinuria
908 —Albuminuria
909 —Pyuria
91 —KIDNEY
910 —Congenital malformations of
911 —Nephroptosis—displacement of kidney
913 —Nephritis, acute
914 —Bright's disease
915 —Renal calculus—stone in kidney
92 —BLADDER
920 —Congenital malformation
922 —Calculus
923 —Cystitis
924 —Fistula
925 —Retention of urine
926 —Suppression of urine
927 —Incontinence of urine
93 —URINARY PASSAGES
932 —Ureter
9322 —Calculus
9324 —Stricture

934 —Urethra
9432 —Congenital malformation
9344 —Calculus
9346 —Stricture

94. REPRODUCTIVE SYSTEM

940 —GENERAL
941 —Functional disturbances
9411 —Impotence
9412 —Sterility
9413 —Masturbation—self-abuse
9414 —Amenorrhea
9415 —Dysmenorrhea
9416 —Menorrhagia
9417 —Climacteric—menopause
943 —FEMALE ORGANS
9432 —Congenital malformation
9434 —Ovary
94342—Displacement
94344—Ovaritis
94346—Cysts and tumors
94348—Removal of ovary by operation
9436 —Uterus
94362—Congenital malformation
94364—Displacement
94366—Laceration of
9438 —Vagina
94382—Congenital malformation
945 —MALE ORGANS
9451 —General
94515—Hermaphroditism
9452 —Testis
94522—Cryptorchism
94524—Partial
94527—Complete
9453 —Prostate gland
94532—Enlargement
94534—Calculus
9454 —Penis
94542—Circumcision

96. THE PUERPERAL STATE

960 —General
962 —Accidents of pregnancy
9621 —Abortion
9622 —Miscarriage
9624 —Ectopic gestation
9626 —Tubal pregnancy
9628 —Convulsions
963 —Puerperal hemorrhage
964 —Accidents of labor
9641 —Cæsarean section
9642 —Forceps application
9643 —Breech presentation
9644 —Other abnormal parturition
9645 —Symphysectomy
9646 —Difficult labor
[Rupture of uterus (see 94366)]
965 —Puerperal septicæmia
9652 —Puerperal albuminuria
9653 —Puerperal phlegmasia
9656 —"Death from child birth"
(3160 Puerperal insanity—see Nervous System, 3160)

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The Eugenics Record Office

Cold Spring Harbor, Long Island, N. Y.

ESTABLISHED in connection with the Eugenics Section of the American Breeders Association in 1910, this office aims to fill the need of a clearing-house for data concerning "blood lines" and family traits in America. It is accumulating and studying records of physical and mental characteristics of human families to the end that the people may be better advised as to fit and unfit marriages. It issues blank schedules (sent on application) for the use of those who wish to preserve a record of their family histories.

The Eugenics Section and its Record Office are a development from the former committee on Eugenics, comprising well-known students of heredity and humanists; among others Alexander Graham Bell, Washington, D. C.; Luther Burbank, Santa Rosa, Cal.; W. E. Castle, Harvard University; C. R. Henderson, University of Chicago; Adolf Meyer, Johns Hopkins University; J. Arthur Thomson, University of Aberdeen; H. J. Webber, Cornell University; Frederick A. Woods, Harvard Medical School. The work of the Record Office is aided by the advice of a number of technical committees.

The chairman of the Section is David Starr Jordan; its secretary is C. B. Davenport. The superintendent of the Eugenics Record Office is H. H. Laughlin, Cold Spring Harbor, N. Y., to whom correspondence may be addressed.

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BULLETIN No. 7

THE FAMILY-HISTORY BOOK

COMPILED BY

CHARLES B. DAVENPORT

FROM RECORDS AND SCHEDULES FURNISHED BY

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With sixteen figures in text and
six plates

Cold Spring Harbor, N. Y.
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INTRODUCTION.

One of the commonest requests made of the Eugenics Record Office by those who are anxious to coöperate in gathering data is for "blank schedules." Some such schedules we have, indeed, provided; but it is impracticable to devise schedules that will meet all requirements. The trained field workers of the Eugenics Record Office are not encouraged to use definite schedules, but to secure data adapted to giving information on the specific points they are studying. They are provided with paper ruled to facilitate the making of charts and writing descriptions in duplicate. The purpose of the present compilation is to show how the various sorts of family histories are prepared. The histories printed here have often been much abbreviated from the original, in order to keep the whole work within desirable limits, but enough is given to illustrate the method of recording Family Histories of the different classes. The figures were prepared by Mr. William F. Blades.

The records are here printed without names, excepting those that are taken from published books. This is in accordance with the agreement made with those who furnish records; namely, that data is held as confidential. "Confidential" means that no names will be published nor the data permitted to be used so as to furnish food for one of the most unfortunate "depraved" appetites that a human being can be cursed with—a love of gossip and scandal-mongering. Data are used for study and analysis and for publication of the results so as to be of scientific and social use. Data may be furnished to students for scientific inquiry, to those contemplating marriage, and even, in some cases, to state officials, to whom organized society has a right to look for the care of its broadest interests. It is hoped that it will in time come to be generally regarded as a social duty to record and deposit in the vault of the Eugenics Record Office data concerning the hereditary traits of one's family.

I. THE RECORD OF FAMILY TRAITS.

Note: The Eugenics Record Office (in combination with the Carnegie Institute of Washington's Department of Experimental Evolution) has issued printed schedules with the above title, of which over 10,000 have been distributed. The person who receives the schedule assigns himself to a place in the pedigree—as father, mother, child, etc.—and places his relatives to corresponding places in the schedule. The commonest error made in filling out the schedule is a curiously egocentric one: under "Father" is given the writer's father; under "Child No. 1" the writer's first child; and the writer and his or her consort nowhere appear. The safest method is to describe oneself first. The value of the Record of Family Traits is, for the Record Office, that it demonstrates the existence of, and locates, the numerous strains with dissimilar traits. Here is a tubercular family, here a family resistant to lung diseases. There is a family of farmers, here of seamen, and so on.

The Eugenics Record Office will send a copy of the blank schedule to any person who will undertake to fill it out and return it. The Office will gladly send a second copy to any collaborator in order that a copy may be kept in the family. It is very desirable that a record of traits should be made as soon as possible; for as the older people die they carry with them many facts of family history that, unless recorded, become lost forever.

The sample Record given is one of a school teacher: pride and sensitiveness derived from the mother's side; with energy, dictatorialness and some artistic talent from the father's side.

SAMPLE RECORD.

FATHER'S FATHER.

J. E. Born Oct. 6, 1805, near Nashville, Tenn.; resided always on the farm where he was born; occupation: school teacher, farmer. In middle age, liable to hemorrhoids; died at 76 of Bright's disease; a good farmer; honest to a dot; did not slight his work; capable and respected; fond of books and a joke; delicate looking, though quite healthy.

FATHER'S MOTHER.

M. C. Born Feb. 1, 1811, near Nashville, Tenn.; resided in Williamson Co., Tenn. (county of her birth); occupation: a farmer's

daughter and a farmer's wife. She was never sick a day until she broke her leg at the age of 70. "Her husband never had a doctor's bill for her," was the phrase. Died at 88 years, of senile decay. Industrious, spun, wove, knit well and much, especially after being crippled; very dictatorial, great scold, severe, pious.

MOTHER'S FATHER.

G. M. D. Born ——, near Newark, Ohio; resided in Licking Co., Ohio,—La Salle Co., Ill.,—Sumner Co., Kan. Occupation: farmer. Died at age of 79 of creeping paralysis after la grippe. Never underwent any operations, but had a severe attack of typhoid fever in youth. Proud, anxious to be very wealthy, aristocratic; poor judgment in investments; a great tease; very partisan.

MOTHER'S MOTHER.

K. G. Born ——, near Newark, Ohio; resided in Licking Co., Ohio,—La Salle Co., Ill.,—Sumner Co., Kan. Occupation: farmer's daughter and farmer's wife. Died at the age of 77 of pneumonia. Had erysipelas and her first attack of pneumonia in middle age, but never underwent any operations. Proud, sensitive, good memory, fond of reading, partisan, good cook, affectionate, good nurse.

FATHER (for father's fraternity see below).

J. A. E. B. Oct. 11, 1835, near Nashville, Tennessee. Resided near Nashville and in various towns in Colorado and Illinois; occupation: farm boy, Methodist minister at 53 years. Died at age of 73 of chronic cystitis and prostatitis. Suffered in youth with catarrh of stomach and an attack of typhoid fever. Good speaker and student, good interpretative voice; sensitive, sympathetic, quick-tempered, heavy, well-shaped, vigorously religious, nervous, disliked manual labor.

MOTHER (for mother's fraternity see below).

M. E. D. B. Feb. 4, 1846, near Ottawa, Ill. Resided near Ottawa, in various Tenn., Ill., and Colo. towns. Occupation: farmer's daughter, school teacher, minister's wife. Suffered from prolapsus uteri, overcome when child-bearing ceased. Underwent no operations, but in youth suffered with constipation and ills resulting therefrom; not robust, but not often sick. Good student, teacher, nurse and seamstress; sensitive, proud, fond of music, worries a good deal, nervous.

CHILD NO. 1.

M. K. E. B. March 19, 1879, in Central City, Colorado. Resided in towns in Colo., Ill., Tenn., where father preached longest. Occupation: School teacher, farmer's wife. Has undergone no operations, but in youth suffered with sick headache, catarrhal colds, and has had a severe attack of typhoid fever. Fond of books, music, flowers, and farm-work. Likes study; good memory, sensitive, sometimes sulky, lacks self-confidence; called Puritanical.

CHILD NO. 2.

C. B. E. B. Jan. 25, 1881, in Pueblo, Colorado. Has resided in various towns in Ill., Nashville, Tenn., and the longest in De Kalb, Ill. Occupation: School teacher, now critic teacher in the State Normal School. In youth suffered with headaches, hemorrhoids, hoarse colds, nervousness; has had a nervous breakdown, and was operated on for hemorrhoids and for growth in the rectum. Good at all study, especially arithmetic and history; successful teacher, good in music, and with needle. Lacks poise; has good taste and is admired for personality; worries, very nervous, dictatorial.

CHILD NO. 3.

E. C. E. B. —— in De Lehn, Kankakee Co., Ill. Has resided in various towns in Ill., in Nashville, Tenn., Loveland, Colo. Occupation: School teacher and farmer's wife. Suffered with tonsilitis, nightmare, female trouble, constipation, pneumonia, congestion of lungs, measles, very sick in childbirth, nervous breakdown; no operations. Fond of music, good housekeeper, good primary teacher, very sensitive, nervous, dictatorial, sympathetic, affectionate, not strong.

CHILD NO. 4.

G. L. E. B. Sept. 28, 1885, in Nashville, Tenn. Resided in towns in Ill., Tenn., and Colo. Too frail for any occupation. Suffered with sick headaches, catarrh, styes, slipping of knee cap, deafness, nervous breakdown; had grave attack of typhoid fever. Fond of books and music; great tact in care of children, sensitive, nervous, good-tempered, devout, affectionate, sympathetic.

MOTHER'S FRATERNITY.

S. L. D., mother's brother, b. 1840; lives in Walkerville, Montana. Short, medium-brown hair and gray eyes, imperfections of sight only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	FATHER'S FATHER.	FATHER'S MOTHER.	MOTHER'S FATHER.	MOTHER'S MOTHER.	FATHER.	MOTHER.	CHILD No. 1.	" 2.	" 3.	" 4.	" 5.	" 6.	" 7.	" 8.	" 9.	" 10.
SEX OF CHILD, F. Female, M. Male							F	F	F	F						
Age for which description is given	73	80	70	70	70	66	33	31	29	26						
(a.) 10. Adult or present height, inches (no shoes) or *v. s.* (very short), *s.* (short), *m.* (medium), *t.* (tall), *v. t.* (very tall).	65	69	73	62	68	66	62	65	67	61						
(a.) 11. Adult or present weight, lbs. or *s.* (slender), *m.* (medium). *c.* (corpulent).	135	200	182	105	190	120	150	120	122	105						
12. Color of hair (before graying) *a.* (albino, white), *f.* (flaxen). *y-br.* (yellow-brown), *l. br.* (light brown), *m br.* (medium brown), *d, br.* (dark brown). *n.* (black, *nigrum*), *cl. r.* (clear red), *d. r.* (dark red), *d. br r.* (dark brown red).	n	n	l.br	n	m.br	l.br	y.br	l.br	f	n						
13. Color of eyes. *p. bl.* (pale blue), *d. bl.* (dark blue), *bl. br.* (blue with brown spots), *l. br.* (light brown), *d. br.* (dark brown), *n.* (black), *y. bl.* (yellow blue-gray or green), *r. br.* (reddish brown)	y.bl	p.bl	p.bl	d.br	p.bl	y.bl	p.bl	l.br	p.bl	y.bl						
13a. Note if color differs in the two eyes, *dif.* or if eyes constantly wander or twitch, *tw.*																
14. Complexion or skin color *bl.* (blond), *i.* (intermediate), *br.* (brunette) *d. br.* (dark brown), *n.* (black, *negro*), *y.* (yellow), *y. br.* (yellow-brown), *r. br.* (reddish brown).	i	i	bl	br	i	bl	bl	br	bl	br						
15. General mental ability *1.* (poor; failure to advance at school). *2.* (medium to good). *3.* (exceptionally good).	3	3	3	3	3	3	3	3	3	2						
Special ability as below — Note: In each ability the grades to be as follows: *1.* (poor). *2.* (medium to good), *3.* (exceptionally good).																
16. In vocal music	2	2	1	1	2	1	2	2	3	1						
17. In drawing or coloring	1	1	1	1	1	1	1	1	1	1						
18. In literary composition	2	2	1	3	2	3	2	3	3	2						
19. In mechanical skill	1	3	2	2	1	2	2	2	2	1						

20. In calculating	3	3	2	2	2	3	2	3	3	1						
21. In remembering	3	3	2	3	3	2	3	2	2	2						
22. General bodily energy *1.* (very inactive), *2.* (ordinary). *3.* (exceptionally energetic)	2	3	2	2	1	2	2	2	2	1						
23. Condition of sight *1.* (blind). *2.* (imperfect; wears glasses). *3.* (strong).	3	2	3	3	3	3	3	2	3	3						
24. Age when sight defect, if any, was acquired or, *c.* (congenital; born defective).		45						28								
25. Color blind?																
26. Condition of hearing *1.* (deaf). *2.* (defective) *3.* (strong).	3	3	3	1	2	3	3	3	3	1						
27. Age when hearing defect, if any, was acquired *c.* (congenital; born defective).				60	45					22						
28. Condition of speech *n.* (normal), *l.* (lisping), *s.* (stammering), *d.* (dumb; speech unintelligible).	n	n	n	n	n	n	n	n	n	n						
29. Age when speech defect was acquired *c.* (congenital).																
30. Temperament *p.* (phlegmatic, slow), *i.* (intermediate). *n.* (nervous, quick).	i	i	p	i	n	i	i	n	n	n						
31. Use of hands *a.* (ambidextrous), *l.* (left handed), *r.* (right handed).	r	r	r	r	r	r	r	r	r	r						
Defects of bodily form as below Check (X) any that may be present. 32. Birthmarks																
33. Hare lip																
34. Abnormal fingers or toes																
35. Dissymmetry of trunk																

☞ Give the data asked for (using figures or letters) in the blank spaces at the right. Enter the data in the proper column for grandparents (columns 1—4), parents (columns 5, 6), and children (columns 7-16).

☞ Fill out lines 25 and 32 to 35 by marking a cross (X) wherever the trait is found.

☞ If more than ten children, use an additional blank.

a The numbers given are illustrative merely.

b Frail health impaired ability to study.

FIG. 1.

due to age; fond of books, affectionate, industrious but slow, proud.

L. D. G., mother's sister, b. 1842 and d. 1906 of cancer. Height above medium, dark-brown hair and eyes; proud, sensitive, good cook, fine looking, fond of reading.

E. B. D., mother's sister, b. 1844 and d. 1910 of cancer. Of medium height, dark-brown hair and eyes; proud, sensitive, moody, good cook, fine looking, fond of reading.

E. B. D., mother's sister, b. in Walkerville, Montana. Of medium height, yellow-brown hair and light-blue eyes, overtired by work; proud, sensitive, good housekeeper, slow, visionary, fond of reading.

C. D. M., mother's sister, b. 1863 in Walkerville, Montana. Height above medium, dark-brown hair, dark-brown eyes, wears glasses; proud, sensitive, fond of books and study, teacher, draws and paints, musical.

L. D., mother's brother, b. 1848 and d. 1902 of pneumonia. Above medium height, dark-brown hair and eyes, wore glasses from age; proud, sensitive, fond of books and study, lacked judgment, fine looking.

F. N. D., mother's brother, b. 1854 in Walkerville, Montana. Short with dark-brown hair and eyes, wears glasses from age. Proud, sensitive, accumulative, fond of reading and likes horses.

C. D., mother's brother, b. 1856 and d. 1897 of pneumonia. Very tall, yellow-brown hair and light-blue eyes; proud, sensitive, fond of reading, silver miner, as were all the other brothers.

E. L. D., mother's brother, b. 1865 in Central City, Colo. Very tall, yellow-brown hair and light-blue eyes; proud, sensitive, fond of reading, good manager of men, affectionate.

FATHER'S FRATERNITY.

H. C. E., father's brother, b. 1829 and d. 1907 of enlargement of liver. Tall, dark-brown hair and light-blue eyes; tyrannical, not over honest in family money affairs, religious, affectionate to his own.

D. C. E., father's brother, b. 1831 and d. 1911 of bladder trouble. Of medium height, dark-brown hair and light-blue eyes; honest, kind, easy-going, industrious, severe if aroused.

J. A. E. P., father's sister,, b. 1846 in Nashville, Tenn. Tall, black hair and dark-blue eyes, wears glasses all the time, but only on account of age. Industrious, pious, fine nurse, complains a great deal, good cook, good seamstress.

M. E. S., father's sister, b. 1852 in Nashville, Tenn. Of medium height, light-brown hair and eyes, wears glasses from age; industrious skillful needlewoman, sharp wit, pious, capable.

M. C. E., father's sister, b. 1854 and d. 1899 of tuberculosis. Of medium height, dark-brown hair and blue, short-sighted eyes; cross, industrious, sick a great deal, good singer, pious.

E. E. A., father's sister, b. ——, and d. 1904 of tuberculosis. Of medium height, dark-brown hair and light-brown eyes; had a "cat eye." Industrious, fond of music, pious and capable.

M. E. R., father's sister, b. ——, d. 1885 of tuberculosis. Tall, with dark brown hair; industrious, slow, good singer, pious and lovable.

M. E., father's sister, b. 1852 and died before she was twenty of tuberculosis. Above medium height, light-brown hair, industrious, slow, subject to styes.

B. E., father's sister, b. ——, and d. ——, of tuberculosis.

II. GENEALOGICAL RECORDS.

The purpose of many genealogical records seems to be purely legal; to establish relationships. But many genealogists have a higher aim—to make a record of the life histories of the members of a family. A genealogy conceived in the latter fashion can be of great use in the study of human blood lines, provided the whole truth be told; provided the less as well as the more socially desirable traits be recorded; and that physical traits (including causes of death) be given. The old idea that traits are private and personal things must be done away with, and everyone should feel willing to let it be generally known what combination of traits fell to his lot. In that combination there is ground neither for vanity nor regret.

One great defect mars nearly all genealogies: the defect of following the male line only—the trail of the *name*. However useful our system of following the patronymic alone may be in law and social intercourse, it should not be employed in the genealogy that makes any pretense of providing material for the study of hereditary traits in the past, or of predicting the traits of children. The mother's blood contributes quite as much to the child as the father's; in fact, some traits are inherited by sons only from the mother's side of the house. To be sure, this method of collecting genealogical data would greatly complicate the record. It would be necessary to start with a fraternity, describe the

traits of each member of it, pass to the description of the traits of each of the father's and the mother's fraternities with an account of their consorts and offspring. Next take up the fraternities of the four grandparents, their consorts and their children, children's consorts, and children's children. Certain lines might be carried out further to show the source of particular traits or to tie together parts of the network.

We give two sample histories. The first was sent us by a literary man who shows an extraordinary capacity for analyzing his family traits.

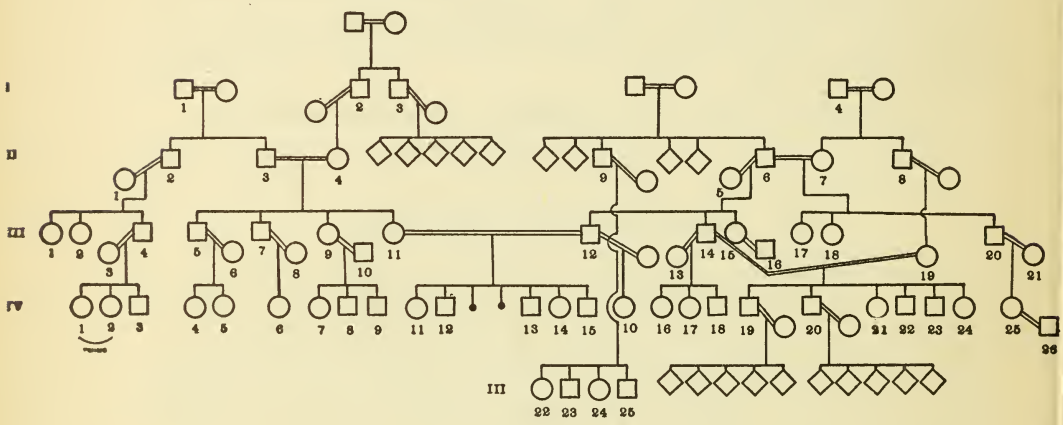


FIG. 2.

a. THE GENEALOGY OF THE X. FAMILY.

♂, male; ♀, female.

I. 2 ♂. Dissipated, died of some venereal disease early last century.

I. 3 ♂. Tall, black hair, black beard; went to South America late in 18th century; lived there many years; returned to England with a fortune; settled down as a bachelor. Few years later, a native (Indian or Negro) woman, and a group of half-breed children arrived and claimed him as husband and father. He recognized the claim and supported them.

II. 4 ♀. Slender, light-brown hair, blue eyes, deeply religious, patient, strict old-fashioned Quaker, suffered many years with scrofula in the form of a running sore on the leg; born about 1820; died about 1880. Married:

II. 3 ♂. Tall, brown hair and eyes, large Roman nose, deeply religious old-fashioned Quaker, humorous; poor business man; born about 1810; died about 1885.

III. 1 & 2 ♀. Old maids, strict Quakers, tall, dark, slender, passion for flowers and gardening; painted beautifully, intellectual, retiring.

III. 4 ♂. Tall, dark, handsome, Roman nose, fair complexion; manufacturer of patent leather, bankrupt, passion for sport, especially shooting and fishing, painted well. His son and twin daughters (IV, 1, 2, 3) inherit almost all his characteristics.

III. 5 ♂. Very tall, about 6′ 3″, inclined to stoop; had light-brown hair but now very bald, blue eyes, large Roman nose; clever chemist and mechanic; unusually simple in knowledge of the world; nominally a Quaker but fond of getting away from home and having a good time. At age of nearly 70 made ardent love to his nephew's wife; at same time devoted to his wife and family; weak character, easily led; home dominated by wife, who was a woman of a great Quaker family of manufacturers.

III. 7 ♂. Very tall, about 6′ 7″, built in perfect proportion, brown hair, hazel eyes, carried himself well, dressed very well, physician with large practice, specialist in oculism; wife very nervous little dark woman, died early, leaving one daughter of whom I know nothing (IV, 6).

III. 9 ♀. Tall, slender, graceful, brown hair, hazel eyes; sweet, loving disposition, lost her mind after her husband was fired upon by Land Leaguers in Ireland; was confined in private asylum for a while; more recently at home, mildly insane. Her husband (III, 10) a short, red-haired, blue-eyed irascible Irishman, full of fun, eminent physician, stern father intolerant to vices of his son (IV, 9). The latter, a medical student in Dublin, formed the opium habit; father cast him out; mother visited him in secret in her lucid intervals, and supplied him with money and food. He committed suicide. IV, 8, the latter's brother, a replica of his father in appearance, built up fine practice as surgeon.

III. 11 ♀. Born about 1845; tall, brown hair, hazel eyes, straight nose, sweet temper, loving wife and mother, but just in her reproofs and punishments. Died 1875 of diphtheria when about 30 and enceinte. Painted beautifully, especially flowers. Spent much time in quiet charity. Strict Quaker.

II. 6 ♂. Born about 1801; short, light-brown hair, blue eyes, rosy complexion, Roman nose, very active, successful self-made man, business man, magistrate, mayor of large town in North of England, was called "the Grand Old Man of the North"; stern in justice, almost a crank on neatness of attire, cleanliness of house and person; at 86 recovered from fracture of arm; absolute master in his home and office; Quaker, but not of the strictest type, especially in old age which seemed to modify his earlier rigidity. Had a habit of swinging his stick round and round as he walked. Advised his grandchildren never to worry; said he had never worried in his life, but his sons say trifles worried him, while he took serious matters very philosophically. Had a brother who lived to be 101. Married twice:

II. 5 ♀. Famous blonde beauty. Died young. Only description I have of her is from miniature painted about 1820, which shows her to have reddish-gold hair, blue eyes, oval face, delicate pink and white complexion. Her picture was published in a collection of the famous beauties of England about 1820. Daughter of a prosperous North of England merchant.

II. 7 ♀. (II, 6's second wife) stout, medium height, dark-brown eyes, almost black hair, precise, refined, aristocratic in bearing. Her brother (II, 8) was a domineering English squire, proud, hot-tempered, fond of good wine but not a drunkard, fond of horses, dogs and the society of sporty gentlemen. His daughter (III, 19) was a slender, brown-eyed, dark-haired, irascible woman with hair upon her face; impulsive, passionately fond of her children but accustomed to thrash them unmercifully with a cane for trifling offenses. She inherited her father's fondness for horses.

III. 14 ♂. Medium height, black hair, brown eyes, bald, Roman nose; poor business man, ambitious, active in politics, a magistrate and mayor of North of England city; fond of horses, inclined to display; lived well up to his income. Died suddenly at about 50 of apoplexy. Of his children:

IV. 24 ♂. (Born 1863) is an unmarried woman medium height, slender, dark hair, brown eyes, suggestion of moustache, refined and affectionate, devotes her life to the reclamation of fallen women.

IV. 23 ♂. (Born 1864) died at about 20; was dark blue all over from an imperfect formation of valves of heart.

IV. 22 ♂. (Born 1865) tall, powerfully built, exceptionally hairy, brown eyes, hair and beard. Very strong; went to sea when 14, became a sea captain. Nearly died of yellow fever when about 26; had

severe operation for mastoiditis and barely recovered, when between 35 and 40. Married the matron of one of the largest hospitals in London, selecting her largely because of her unconventionality. Was very jealous of her. Became morose, moody, despondent; took to drink; died suddenly at sea when about 40. Left no children. Had been promiscuous in his amours before marriage.

IV. 21 ♀. (Born 1866) is unmarried, small, slender, perfectly formed, oval face, large brown eyes, straight narrow Grecian nose, full lower lip, heavy growth of hair upon cheeks, chin and upper lip, long slender hands; fond of music and dancing, romantic, deeply learned in history, romance and poetry of many nations; principal of one of the most fashionable girls' schools in England. Rides horses splendidly; has suffered severely from spinal neuralgia; afraid of nothing; has seen a ghost several times; it is that of a woman who formerly lived as a king's mistress in the mansion she now occupies; she has tried many times to get this ghost into conversation, but in vain. At the moment of her father's death, though 500 miles away and he had not been ill, she heard him call her as if he was at the door of her room. She took the next train for the city in which he was, and arrived to find he had fallen dead at the very moment she had heard him call. Is idolized by the young ladies who attend her school.

IV. 20 ♂. (Born 1868) medium height, golden curly hair, fair complexion, blue eyes; bad judgment in business and inclined to sharp practice, so much so that relatives will not trust him. Changeable, fickle, ever optimistic, fond of hunting and riding; no idea of living within his income. Married and has several young children to whom he is devoted.

IV. 19 ♂. (Born 1869) short, sturdy build, brown hair and eyes; very matter-of-fact but utterly unconventional and has a vein of the romantic and mystical. Went to sea as a boy; was a rancher in Australia, a surveyor in South Africa, organized the first fire department in Johannesburg; fought in a cavalry regiment throughout the Boer war; almost died of dysentery; returned to Johannesburg after war, and reorganized fire department. Married ignorant farmer's daughter of whom he is very fond; has several children. Cares nothing for refinements or conventionalities. Wonderful story-teller, great imagination, universally beloved.

By his second wife, III, 14 had three children. Mother (III, 13) a nervous woman, full of humor, refined and elegant; grey eyes, brown

hair, oval face, prominent front teeth. Of their children, IV, 18 is a brilliant public accountant, short, grey eyes, brown hair, bald at 35, cares little for women's society and still unmarried at 40. Keenly analytical mind; calm judgment; afraid of nothing.

II. 6 ♂. By second wife had three children. III, 20 ♂ (born about 1857) short, brown-haired, grey-eyed, wild as young man; eloped with a barmaid; was clever surgeon and had high reputation as gynecologist. Lost practice through drink. Later did clever work in Egypt exploration under Flinders Petrie; wrote on anthropology. Had no strength of character; ignored his wife's flirtations. She very beautiful, tall, large bust and hips, too slender waist, free and easy in her manners; deserted him and became a harlot in South Africa. Their daughter (IV, 25) was married to a rich man but eloped soon afterwards with an artist, whom she left and returned to her husband.

III. 17 & 18. Are old maids, about 55 and 60 in age. Spend their time travelling about Europe. Can never make up their minds to do anything; fickle, changeable, need someone to "boss" them. Elder has had many flirtations, and could have married one of richest men in England, but was infatuated with his younger brother, a tall handsome sporty fellow who cared nothing for her. Both are intellectual, romantic, refined—almost to excess. Tall, dark-haired, grey-eyed, fair-skinned, oval faces, straight noses.

III. 15 ♀. See also Fig. 3, Gen. B. (Born about 1835) I know nothing about her personally, as she died at the age of about 35, after bearing six children. Her husband, B 1 one of the most successful manufacturers in England, a tall, active, heavily bearded man, born 1826, is still alive. Man of great wealth, little taste but no pretentions to more than he has and glad to take advice of friends in whose judgment he relies. Married three times; children by all wives. I know nothing of children by second and third wives.

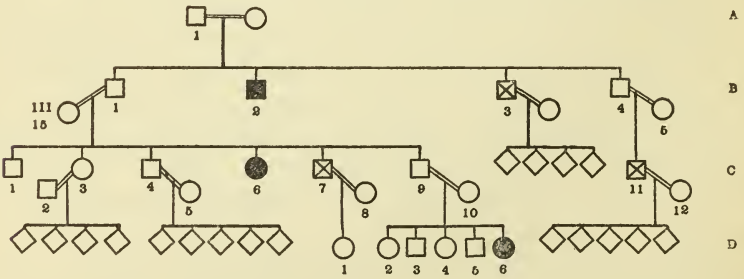


FIG. 3.

B 2 ♂. Harmlessly insane old bachelor. Has to have a companion; generally goes about freely but never alone.

B 4 ♂. (Born about 1825) highly successful manufacturer; great philanthropist; medium height, heavy brown beard, hazel eyes, florid complexion; made a baronet, high principles in business; built and supports an insane asylum; contributes to many charities, spends much time in managing them; active in politics. Wife (B 5) a short, active, intelligent brown-eyed woman, who helps him materially in his charitable work. Their son C 11 clever politician, but unprincipled; seduced the servants in his own house and in those of his friends; wife got a divorce. Has several children, but they are still young.

C 1 ♂. (Born 1855) medium height, grey eyes, slender, light-brown hair, elegant dresser; artist of fair ability, bachelor.

C 4 ♂. (Born 1859) medium height, grey eyes, sandy curly hair; dandy in dress; clever business man, now at head of one of biggest manufacturing businesses in England. Happily married and has several young children.

C 3 ♀. (Born 1854) tall, graceful blonde, grey eyes; happily married and has several children.

C 6 ♀. (Born 1860) insane from birth; had impediment in speech; died at about 40 in an asylum.

C 7 ♂. (Born 1864) thin, medium height, cold grey eyes; narrow, thin nose; quiet but full of sarcastic humor. Careless in dress to the point of eccentricity. Though very rich, goes about in frayed garments. Wife (C 8) had to look after him like a nurse. He was always considered "queer," but is a fairly successful business man of the shrewd sort. Divorced his wife for adultery on her part. They have one daughter.

C 9 ♂. (Born 1866) about 5′ 10″ high; inclined to stoutness; blue eyes sandy hair; slight impediment in speech; seduced working girl when about 20, married her, came to America, with practically nothing; made great success as public accountant, acquiring a very large income unaided by his millionaire father. Pillar of the Episcopal Church; president of young men's club. Wife, C 10, born about 1868 about 5′ 9″; stout, rosy cheeks, light-brown hair, grey eyes, full lips. Though uneducated, has adapted herself to her husband's position, and takes leading part in society of a great city. Their children are all under 20. D 2, born 1892, is the image of her mother, quiet refined, musical. D 3 & 5, born 1894 and 1896, the images of their father. D 6, born 1898, insane from birth; in a private insane asylum.

III. 12 ♂. (Fig. 1) born 1846; about 5′ 5″ tall; slight but wiry; red hair, became bald when about 25; hazel eyes inclining to green; active to the point of nervousness. Has had palpitation of the heart. Passion for Alpine climbing and gardening. Fine business man; his word as good as his bond and worries much over trifles. Good artist; no ear for music; eloquent orator; deep student of literature; keenly critical taste in art. Has traveled all over the world; cares nothing for city life; loves long walks where wide views can be had, but hates walking for any distances through woods. Never idle for an instant, and the sight of anyone else idling irritates him. Hot-tempered, but rigidly just. Affectionate, but inclined to repress all manifestations of affection. Charitable, but does all such work in secret; inclined to be close at driving a bargain, and loathes anything savoring of extravagance; generous father and devoted husband. Twice married. Of his children:

IV. 15 ♂. Born 1865; 5′ 10½″ high; slight, hazel eyes inclining to green, fair complexion, brown hair, yellow moustache, reddish beard, hairy; failed at everything he undertook until he by chance drifted into journalism. At this he made fair but not brilliant success. Myopic. Deeply interested in art, literature, science; brought up a Quaker, but became a Roman Catholic at age of 22. Impressionable, poor business man; inclined to extravagance. Susceptible to women, but devoted to wife and family. Intolerant of anything suggesting untidiness or slovenliness; irritated and depressed by trifles, but soon recovers as he is highly, even recklessly, optimistic. In youth was considered the image of his mother (III, 11), but is now, in face, the image of his father (III, 12) though much taller. Easily led; great gourmet but small eater. Conscientious, but inclined to be conceited. (See Fig. 4 for his descendants.)

IV. 14 ♀. (Born 1866) 5′ 9″; the image of her mother, (III, 11); wavy brown hair, hazel eyes, musical, artistic, fond of admiration, mean in financial affairs; married a man she did not love; has had many flirtations since—two at least of which almost resulted in separation from her husband. Has no children, owing to some internal obstruction which an operation failed to remove.

IV. 13 ♂. (Born 1868) 5′ 9″; sallow, thin, brown hair, hazel eyes. Martyr to liver. Gourmet, artistic and musical; deep student of literature; spends all spare money on books. Generous and liberal, sceptical and cynical in matters of religion. Expert tea-taster, but has little interest in business. Bachelor.

IV. 12 ♂. (Born 1873) 5′ 5″; stockily built; dark-brown hair; hazel eyes, large Roman nose. Unsuccessful in all business undertakings; fine artist in a mechanical line. Careless about personal appearance; perfectly contented with love in a cottage. Married a girl in humble but respectable position; has one baby.

IV. 11 ♀. (Born 1874) tall, reddish-brown hair; hazel eyes, straight nose, careless about dress, easy-going, deeply religious; married an Asiatic missionary. Oriental life has suited her lazy, sweet disposition. Had some uterine trouble as her older sister had, but a slight operation overcame it. Has one son, 10 years old; typical Oriental type. Has had two or three miscarriages recently; has a baby girl born alive.

III. 12 ♂. Married a second time a widow with three children, all of whom died of tuberculosis, as their father had done. By her, he has one daughter (IV, 10) (placed in diagram between 15 & 16) who is tall, with reddish hair, blue eyes, straight nose, pink and white complexion. She is fickle, but stubborn in love affairs; has many sweethearts, each of whom for the time was the "only man in the world." Romantic, impressionable, good musician, fine singer. Her mother was tall, dark, brown eyes, clear complexion, musical, good singer. Ever since daughter's birth, has been neurasthenic invalid.

IV. 10 ♀. Has been married five years, but has no children.

F 3 ♂. Scotchman, born about 1820, (mother English) 6 feet tall, blue eyes, light-brown hair, which he kept to the day of his death at about 82. Florid complexion; bigoted Presbyterian; scrupulously honest and unselfish, even quixotically so. Poor business man. Failed in business early in life, did better working in positions of trust for others. Uncompromising in his loves and hates. Strict but affectionate father. Hated all sham and everything that tended toward display or fast living. His brother, (F 2), I know nothing of, but the latter's son, now about 70 years old, is a distinguished judge, a lecturer on law in a great university; a man about 6 feet tall, large blue eyes, florid complexion, brown hair; has an affection of the eyes that exposes the inside of the lids. Women say that when he is talking to one, he gives her the impression that she is the only woman he ever loved. Have been several scandals about his relationship with women, but his wife has always shown her faith in, or loyalty to, him by making friends of the women about whom there was gossip. His four sons are distinguished in their professions, two as lawyers, two as engineers. The four sons are married and have young children.

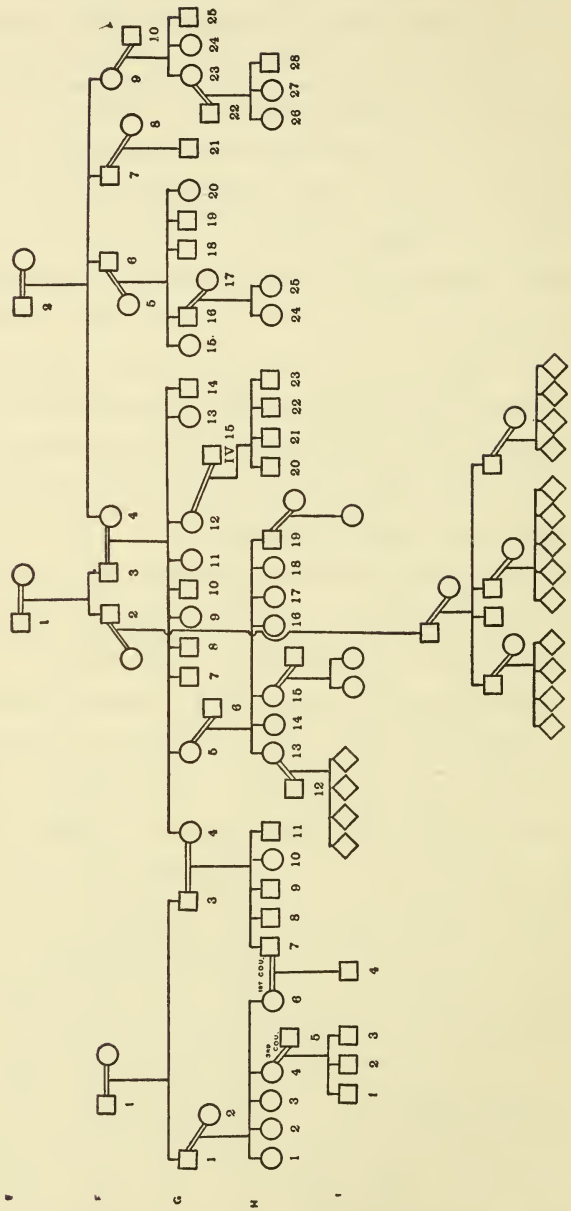


FIG. 4.

F 4 ♀. Born 1829; died 1910 of diabetes; 5′ 10″ tall, hazel eyes, long pointed nose, firm mouth, oval face, fine figure, soft white skin. Brought up a Roman Catholic, but after marriage became Scotch Presbyterian of most bigoted type. Fine business woman. Proud as Satan. After her husband's failure, she managed to bring up her large family in a small country town surrounded by Indians, and miners, like ladies and gentlemen, preventing them from associating with other children. On moving to large city, took her place at once in its most exclusive society. Contrived to save about $10,000 out of her husband's slender salary, which she invested little by little in gilt edged stock. Fought for her rights in the courts even when this involved breaks with old friends. Hospitable to a fault; house always full of indigent friends, always open to relatives at all hours. Could not see a joke, but made some of the cleverest jokes herself. Her father, E 2, colonel in British army, married an Englishwoman. Her brother:

F 6 ♂. One of the most famous surgeons on this continent. Born about 1830; died about 1906 of acute gastritis. About 6 feet tall; long pointed nose; grey eyes; mouth a straight line; proud, full of humor; an aristocrat to the marrow; the idol of the poor in his city; had a vast practice; lectured on surgery in several great universities; spoke several languages; travelled extensively; was at various times elected to high office in city and country; knighted by Queen Victoria, and by Pope Leo XIII. Married late in life. Brought up a Presbyterian, he became a Roman Catholic; gave liberally to Catholic charities; was lavishly generous but with poor judgment; would slip a $10 gold piece into the hand of a 6-year-old nephew whose parents were well off, but forgot entirely nephews and nieces whose parents were obliged to struggle to keep things going. Careless about business matters, and thoughtless in his management of the estates of poorer relatives. In important lawsuit entrusted his case to young lawyer just graduated, simply because youth needed the money; lost the case through lawyer's bungling, but did not care. Of his children, G 18 ♂ is a Jesuit priest, tall, thin, pointed nose, thin lips, weak-looking eyes, eloquent, deep student. G 16 ♂ is about 30 years old, tall, blue eyes, blonde, pointed nose, thin lips, a rising surgeon. Married and has two blue-eyed blonde babies. Other children young or dead.

F 7 ♂. Short, dark-grey eyes, long pointed nose; married an intensely religious shrew; liked to escape and have a quiet good time with the boys. Had an only son, tall round face, short thick nose, blue

eyes, thin lips. This young man (G 21) is musical, fond of companions beneath his station in life, simple in tastes, commonplace in every way. Married a woman who went to the bad; remarried a working woman who died. Has no children by either.

F 9 ♀. Short, stout, light-brown hair, many oddly-shaped moles on back covered with fine hair; blue eyes; a crank on auction sales; bought every useless thing that seemed cheap. Frittered away a fortune. Lavish entertainer; impulsively generous and did not hesitate to impose upon friends in like manner. Know nothing of her husband. Of their children, G 25 ♂, born about 1852, unmarried, very religious, childishly simple in tastes, loves theaters and good eating; keen sense of humor, but cannot make a joke or tell a story. G 24 ♀, born about 1857, unmarried, fond of gayety, frivolity and flirting. Has grey eyes, exceptionally large bust, thick curly hair. G 23 ♀, born about 1858, is married to very rich man; leader of society in large city; lavish entertainer; myopic, has gone blind in one eye, and other is almost blind; about 50 years old; short, slender; light-brown hair; hazel eyes. All those three have long bodies and very short lip. G 22 ♂ has had three children; boy died of typhoid fever, two girls are musical and intellectual; care nothing for society, but only for art and literature and music.

G 4 ♀. Born about 1855; tall, reddish blonde hair; blue eyes; complexion like apple blossom; graceful figure; died of tuberculosis at age of about 30. Her husband, G 3, short, volatile Frenchman, proud, lazy, alcoholic, too proud to work, neglected his family after wife's death, and allowed his children to be brought up by their maternal grandmother. Of these, H 7 ♂, born about 1878, medium height, curly red hair, blue eyes, industrious, temperate, easily led by those he loves; has made success in business, though starting with nothing. Married H 6 ♀, his first cousin. She is a tall, vivacious brunette, dark-brown eyes, rosy cheeks, fine figure; she is the "boss." They have one child, a boy about 6 years old, delicate, golden hair, blue eyes. H 8 ♂, born about 1876, ran away; he had no home, and after cruising around many places, married a German servant. They have some children. He is a tall, red-haired, blue-eyed man who cares nothing but for home and simple comfort. H 9 ♂, born about 1877, stocky, dark red hair, hazel eyes; generous, self-sacrificing; hard worker; eloped with another man's wife, old enough to be his mother, she deserting several children. They have several children. H 10 ♀, born about 1879, medium height, red hair, bright light-blue eyes,

yellow lashes, freckled face, slender graceful figure, has a faculty of making herself useful to others; adaptable, self-sacrificing, foolish about money matters, inclined to be impulsively extravagant, has earned her own living, is about (Jan. 1912) to marry a man two years her junior, an only son of very rich and aristocratic parents.

H 11 ♂. Born about 1880, medium height, red hair, freckled, grey eyes. Has wanderlust; ran away from school often as child, robbed his aunt, when 13; fired from a school for stealing a watch; an inveterate liar, but a genial, pleasant, loveable companion.

G 5 ♀. Born about 1852; medium height, very stout, dark-brown hair, brown eyes, long pointed nose, easy going, full of fun, a fine cook and a good housekeeper. Her husband a conceited boaster, but a clever engineer, was for long a drunkard, but at the age of about 60, he gave up liquor absolutely. She has always been kind, long-suffering and gentle with him, and never has hinted to anyone that he was not the best husband in the world. Their children are all the images of their father, but have most of their mother's characteristics. H 13, married to a clergyman who was basely untrue to her, was loyal to him and effected his reform.

G 7 ♂. Very tall, dark brown hair and beard; long pointed nose; died of tuberculosis at about 30, complicated with some venereal disease.

G 8 ♂. Very tall, brown hair, brown eyes, musical, full of humor, great story teller, fond of yachting, swimming and all sports. Died of tuberculosis and rheumatism at about 30.

G 9 ♀. Born about 1850; short, square-jawed, grey eyes, long pointed nose, large mouth, one leg shorter than the other; never married. One of the most self-sacrificing women in the world; spends all her life trying to find things to do for others and doing them.

G 11 ♂. Born about 1852; short, slender, brown eyes, large mouth, big teeth, one white lock in brown hair, tender hearted, sentimental, hot-tempered, cries whenever she says goodbye even for a day. Has had several love affairs, but never married. Full of fun; passionately fond of her nephews and nieces whom she spoils terribly. Timid to a ridiculous degree.

G 12 ♀. (Born abt. 1860) 5′ 10″ tall; perfect figure, soft white skin, hazel eyes, dark brown hair; long pointed nose; small mouth, narrow jaws, oval face, small chalky teeth; suffered from rheumatism as a girl; had severe attack of typhoid fever at age of 48; suffered severely from malaria when 30—35. Affectionate, devoted to family;

demonstrative in love for her children when babies, but gradually less so as they grow older; finds it difficult to make any demonstrations of affection for husband or grown up sons; but would sacrifice her health and her life for them. Hard worker but utterly without any idea of system. No sense of locality or direction. Bad memory for names. Fond of music, cares nothing for literature or art; more conscientious than religious, though inclined to bigotry; intolerant and uncharitable in her judgments of others; inclined to worry. Proud of family; would lie or kill to protect any of them; utterly lacking in curiosity; married at 30 and had not the faintest idea of what marriage meant or whence babies came. Of her and (IV, 15's) children, H 20 ♂, born 1891, is 6′ 2″ tall, hazel eyes, brown hair, sallow complexion, nervous, optimistic, abnormally narrow upper jaw but large teeth had to have upper jaw stretched; has suffered much from inflammatory rheumatism and tonsilitis; adenoids removed when about 15. Had scarlet fever and measles when a small child. Had malaria when 2 years old. Physically powerful, muscular, but inclined to stoop. Passion for mechanics and electricity; studied the theory of these as a boy; thoroughly mastered them before he was 18. Would not study at school, failed in high school; but is making a fine success in the employ of a great electrical manufacturing concern. Got into serious trouble when 15 by trying to seduce girl of 13; since then has cared little for girls' society, acting as if afraid of them. Hates "society," but has a few warm friends, generally in a station of life rather beneath him. Careless about personal appearance, fidgety, contracts little habits of fidgeting with trifles; on the go all the time. Affectionate, thoughtful, unselfish, and considerate of others, but fickle in his friendships, rushing them at first, then suddenly forgetting them. On his holidays, prefers a farmhouse to a fashionable resort. Keen sense of humor; tells a story well until he comes to the point, when he laughs so hard that he cannot finish it intelligently, or has to repeat it when his laugh is over.

H 21 ♂. Born 1893; 6′ tall, thin but broadchested and muscular; fearless, strong constitution. As a child of 2 to 4, enjoyed nothing better than getting into a cold bath with the thermometer at zero, and the window wide open; did it with impunity. Dived off into ten feet of water, trusting to someone to catch him when a child of 2. Learned to swim when very young, and to-day, will swim for hours as far out at sea as he can get. At six learned to box and would put on the gloves with his father and take all the punishment the latter could give,

without losing his temper. Good football player. As a boy cared for nothing but sport. Always careful about associates; would never make friends with people beneath him. At 18, knows all the nicest girls in the city in which he lives, and is a prime favorite with them. Straight nose, brown eyes, brown hair, the face of a Greek god; large strong teeth, but inclined to be chalky; very hairy legs and body; at 18 had to shave regularly. Hard to move, stubborn, determined to have his own way, very thoughtless of others; a dandy in dress. Persistent and patient in attaining his end in spite of all obstacles. Diligent worker when once started, and whatever he does, he does thoroughly. Wears scarcely any underclothing in coldest weather, and sleeps with little over him. Has never had any disease except measles when a baby.

H 22 ♂. Born 1896; 5′ 9″ tall; well built; brown hair, large strong teeth, yellowish hazel eyes, Roman nose, plump rosy face, hot petulant temper, quick student and diligent. Loves outdoor sport and mechanical pursuits. Always had a weak stomach, but eats greedily, and it is hard to make him chew his food. Is often laid up with fever and sore throat, due to overeating or greediness in eating rich food, but a day's starvation cures him.

H 23 ♂. Born 1905; always large for his age; grey eyes, rosy cheeks, light brown hair that is red in the sunlight; never sick. Powerful imagination; plays by himself, making of himself an entire football or baseball team. Loves outdoor life. Remarkable musical taste; picked up piano-playing without aid and has such a good ear for music that he can find correct chords and harmonies alone.

G 1 ♂. Born about 1850; a Frenchman of medium height, dark brown hair and eyes, large nose; dissipated but religious. Never able to support family, but always able to live well himself, and associate with the best people. Clever engineer, but cannot hold a position because he will not take orders from anyone. Married G 2 a slender, refined, half-French, half-Irish girl; large blue eyes, wavy golden hair, Roman nose, small mouth, oval face. She was a famous beauty in the South, but has become through worry, a nervous and physical wreck at 60, and looks 90. Very religious, strict Roman Catholic, intolerant, sarcastic, bitter and not altogether sincere. Brought up her five daughters, all of them rare beauties, under great difficulties, but made refined and elegant ladies of them. They are all of same physical type, tall, well-built, rosy-cheeks, brown eyes, large straight nose with large nostrils, perfectly-shaped mouths, and slender hands; all inclined to display, and extravagant in dress. H 6 married her first cousin, already

described. H 4 ♀ is selfish, silly in money matters, no idea of economy, discontented, melancholy, says she was born sad and is always sadder when the sun shines; married a rich man she did not love; he was a dark, black-eyed, short man of French-Italian parentage, a successful, self-made business man, her third cousin. Of her three children, I 1 ♂ was born 1906 with a pyloric obstruction and died in 30 days; I 2 ♂ was born 1907 with a pyloric obstruction which was cured, and today he is a robust, fat, black-eyed, curly haired, active, hot-tempered boy. I 3 ♂, born 1910, with a hare lip, and absolutely no palate; the bone that carries the upper incisors is also absent. Operation closed the lip and made a nostril. 1912 is cutting teeth; second incisors are growing at edge of jaw bone on brink of opening. Lower teeth coming normally. He has red hair, blue eyes; physically robust, trying hard to talk.

b. THE HISTORY OF THE BEECHER-FOOTE FAMILY.

Every family that comprises genius that is commonly regarded as of high order offers points of great interest. In how far is the genius sui generis? Whence came the strain of large imagination? Is this imagination associated with eccentricity and flightiness such as we see in the insane?

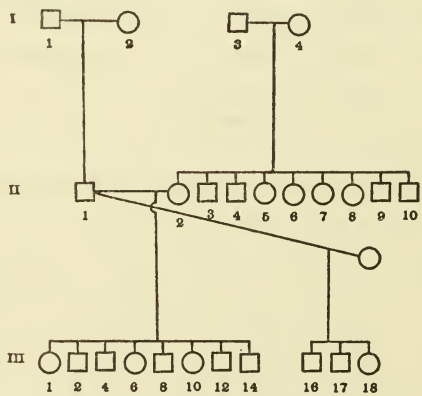


FIG. 5

As an example we select the "Beecher family"—a family that includes two persons of "Hall of Fame" grade: Henry Ward Beecher and Harriet Beecher Stowe, his sister.

III. 1. Catherine Esther Beecher, b. E. Hampton, L. I., Sept. 6, 1800; d. Elmira, N. Y., May 12, 1878. Educated at Litchfield, Sem., Conn. She prepared her own text books in arithmetic, theology and

mental and moral philosophy. In 1832 went to Cincinnati with her father and started a seminary there, but her health failed. She then devoted herself to plan for the physical, social, intellectual and moral education of women, which was promoted through a National Board of Popular Education, that sent hundreds of women as teachers into the south and west. Her mind was full of original vigor, but without much imagination, consequently some of her schemes were impracticable. She had a great deal of racy humor, and mother-wit, with patience, magnanimity, and unbounded good-nature, no bitterness or malice; while working for women's education she opposed woman suffrage and college education for them. Her own common sense was her standard of judgment. She believed that what she could not comprehend could not exist; had no appreciation of art or classical music; she sang and played the piano and the guitar and occasionally wrote verses; for many years she suffered from lameness and weakness of nerve and body; and all her work was carried on under great bodily difficulties. Her published works include "Letters on the Difficulties of Religion," "The Moral Instructor," "Treatise on Domestic Economy," "Housekeepers' Receipt Book," "Duty of American Women to their Country," "Physiology and Calisthenics," "Common Sense Applied to Religion."

III. 2. Rev. Wm. Henry, b. E. Hampton, L. I., Jan. 15, 1802. Educated at home and in Andover. 1833 received honorary degree of A. M. from Yale. Home missionary on the Western Reserve and since held charges in Putnam, Toledo, and Chillicothe, Ohio, in Reading and N. Brookfield, Mass.

III. 4. Rev. Edward, b. Hampton, L. I., Aug. 27, 1803. Graduated at Yale 1822, studied theology at Andover and New Haven; tutor at Yale 1825. Pastor of Park St. Church, Boston 1826-30; president of Ill. College, Jacksonville, 1844; Pastor Salem St. Church, Boston and in Galesburg, Ill. till 1870. Prof. of exegesis in Chicago Theol. Sem. 1872 retired from the ministry. Was senior editor of the Congregationalist for its first 6 years and was constant contributor to periodicals. His two works on the "Ages" gave rise to much discussion, and have modified doctrinal statements as to the origin of human depravity. Married Isabella P. Jones, Oct. 27, 1829.

III. 6. Mary Foote (Beecher) b. July 19, 1805; m. Nov. 7, 1827, Thomas Clapp Perkins of Hartford, Conn., b. July 30, 1798; d. Oct. 11, 1870.

III. 8. Rev. George Beecher, b. East Hampton, L. I., May 6, 1809; d. Chillicothe, Ohio; m. July 13, 1837, Sarah P. Buckingham of Putnam, Ohio. He studied in Hartford under the care of his brother Edward and took a collegiate course at Yale; attended Theol. Seminary at New Haven. His collegiate and professional courses were interrupted by ill health. Had strong social sympathy and a habit of transmitting thoughts and feelings to friends or relatives by letters. He says: "When I am in a weak state of body, unless I have friends with whom I can converse and thus become excited by the collision of intellect, I cannot raise myself to the point of writing with ease." His sermons written under intense excitement. Liked exciting labor, rather than patient, laborious study. Guileless, affectionate, honest, precipitous, broad-minded non-sectarian. Musical ability, as he had charge of two singing schools and often led his own choir. Passionately fond of flowers, shells and other natural objects with beautiful form and color. Interested in total abstinence. He suffered much from dyspepsia, and was frequently depressed in spirits. He was much troubled with weakness of the throat and lungs. In his pastorate he is described as active and ardent; never uninteresting, sometimes surpassingly powerful, but not always happy in his efforts. Died at Chillicothe, Ohio, July 1, 1843, of a self-inflicted gunshot wound.

III. 10. Harriet (Elizabeth) Beecher, b. Litchfield, June 14, 1811. Left motherless at 4 years. Went to aunt's house; committed to memory a wonderful assortment of hymns, poems and scriptural passages; had a very retentive memory and used it later in life. "With the ability to read," Mrs. Stowe said in after years, "there seemed to germinate in me the intense literary longing that belonged to me from that time." From 4 to 6, sought for books: read Arabian Nights at 6. Harriet is described by her step-mother as amiable, affectionate, and very bright. As a girl, on hearing the Declaration of Independence read: "The heroic element was strong in me . . . and it made me long to do something; I knew not what, to fight for my country, or to make some declaration on my own account." At 10 or 11, at Litchfield Acad.: A great joy to be allowed to write compositions. Wrote one that she read at 12 years and father proud of it. Subject: "Can the Immortality of the Soul be Proved by the Light of Nature?" At 12, she went to a Hartford school, and began a drama called Cleon (a great lord at the time of Nero), remarkable for a girl of her age. "Converted" at 14 years. Had an excitable

poetic nature. Was subject to hypochondria. "You don't know how wretched I feel, so useless, so weak, so destitute of all energy." In 1832 wrote a geography (pub. 1833). Published a satirical essay in the Western Magazine. Married Calvin E. Stowe, Jan. 1836. Twins, autumn 1838. Literary work while housekeeping, 1840. June 16, 1845: "I suffer with sensible distress in the brain . . . a distress which some days takes from me all power of planning or executing anything." 1850, "When I have a headache and feel sick as I do to-day." The scene of death of her "Uncle Tom" presented itself almost as a tangible vision to her mind while sitting at the communion table; was almost overcome with it and could scarcely restrain the convulsion of tears and sobbings that shook her frame. Love of fun; absentminded. "Mrs. Stowe's face like that of all her mother's children showed the delicate refinement of the Foote mask overlaid by the stronger and more sanguine Beecher characteristics. Curly, crispy hair, eyes kind and pleasant, frame slender with 'scholar's stoop' of the shoulder. Manner self-possessed, gentle, considerate, without the graces of one habituated to society, she was evidently a gentlewoman born and bred." Mrs. Stowe's genius was essentially dramatic. Her own theater, herself among the actors, the scenery never out of her brain. Mind bubbling and boiling; "Think of so many stories that I don't settle on any." Her public readings were a great success! She died July 1, 1896, at 85 years of age at Hartford, Conn. Mind had deteriorated in late years. "Mind almost ceased to act" for some years before her death. (Like her father's) "My mind wanders like a murmuring brook."

III. 12. Rev. Henry Ward Beecher, Brooklyn, N. Y., b. June 24, 1813; d. Mar. 8, 1887; m. Aug. 3, 1837, Eunice White Bullard, West Sutton, Mass. A graduate of Amherst College, 1834; studied at Lane Theological Seminary, 1834-7. Pastorates in Laurenceburg, Ind.; Indianapolis, Ind.; and Brooklyn, N. Y. Editor of N. Y. Independent in 1861, and in 1870, editor of the Christian Union (now the Outlook). He published numerous books. Had great literary and oratorical ability, great personal magnetism. In temperament he was always hopeful, expectant and progressive. Naturally shy and bashful, ran away from his sister's party as a boy and at 60 years confessed that he never entered, without embarrassment, a room in which he expected to find strangers. Witty and quick in repartee, an excellent mimic, usually the center of a circle of tempestuous merriment. In boyhood was a daring leader and desired to excell in everything. Had a habit of investigation and was a close observer. Had a positive

genius for friendship. His generosity, fairness, love for his enemies and his self-control, impressed one friend most. He was not an original thinker, but had great philosophical insight, spiritual vision and the power of persuasion in public capacity; in both civil war and reconstruction period, he exhibited prophetic and statesmanlike qualities. He employed the resources of wide reading, broad sympathy with men, vivid imagination and a devout emotional nature. He never could handle figures correctly but saw the philosophy and poetry which underlay mathematics and even statistics. Was rather careless in money matters. Had a great love of flowers, gems, and natural beauty in form and color. He died of cerebral hemorrhage, March 8, 1887.

III. 14. Rev. Charles Beecher, b. Litchfield, Conn., Oct. 7, 1815. Graduated at Bowdoin 1834. Theol. course in Lane Seminary, Ohio. Ordained pastor of 2nd Presbyterian Church, Fort Wayne, 1851, when he went to Newark for three years. 1857 at First Congregational Church, Georgetown, Mass. 1870-77 resided in Florida where for 2 years he was state supt. of public instruction and later pastor at Wysox, Pa. Was an excellent musician, and selected and arranged much of the music for the "Plymouth Collection." Published: The Incarnation or Pictures of the Virgin and Her Son; David and His Throne; Pen Pictures of the Bible; Autobiography and Correspondence of Lyman Beecher. He married Sarah Coffin.

HALF BROTHERS AND SISTERS.

III. 16. Rev. Thomas Kennicut Beecher, son of Harriet (Porter) Beecher, b. Feb. 10, 1824. Graduated from Ill. College 1843 when his brother Edward was president. Pastor of N. E. Cong. Church, in Williamsburg, now Brooklyn, N. Y. and had charge of the Independent Cong. Church. Was an influential speaker and writer and is distinguished for his philanthropy. Ignores sectarian feelings and seeks to promote a fraternal spirit among the various Christian denominations. Edited a weekly Miscellany in two Elmira papers on current topics. A lecturer; has pronounced mechanical and scientific tastes and is a lover of art as well as a keen critic. Has travelled in England, France, South America, and California.

III. 17. Rev. James Chaplin Beecher, b. Boston, Jan. 8, 1828; d. Elmira, N. Y., Aug. 25, 1886. Graduated at Dartmouth and studied at Andover. Until 1861 was chaplain of the Seamen's Bethel in Canton and Hong Kong, China. In Civil War was chaplain and then Lieut.

Col. and mustered out in 1866 as brevet brigadier general. Later held pastorates in Oswego, Poughkeepsie and Brooklyn, N. Y. After 3 years of acute suffering from hallucinations which had been present since 1864, he committed suicide.

III. 18. Isabella Beecher, b. Feb. 22, 1822 at Cincinnati, married John Hooker; she combined many traits of a gifted family. Was an active champion of the claim of women to the ballot.

The parents of the fraternity III, 1-14 were Rev. Lyman Beecher and Roxanna Foote who were married in Sept. 19, 1797.

FATHER.

II. 1. Lyman Beecher, born at New Haven, Conn., Oct. 12, 1775. The only child of David Beecher and Esther Lyman, his wife. He was a 7 months child, weighed scarcely 3 pounds at birth and his mother died of tuberculosis two days after he was born. He was laid aside as not viable, but after awhile, as he continued to breathe, was washed, dressed, and cared for. He grew up in his uncle's family at Guilford, Conn.; worked at blacksmith's shop and farm; placed in a good school where he proved to be the best reader in the school. Graduated from Yale 1797; ordained 1798 and preached in Presbyterian church in East Hampton, Long Island, 1798-1810. In Congregational Church, Litchfield, Conn., 1810-26; in Boston 1826-32; at Cincinnati, 1833-43 and was president of the newly established Lane Theological Seminary at Cincinnati, 1832-50 and professor emeritus until his death at Brooklyn, in 1863. He was tried for heresy, a mark of breath of view in theological matters. Published Views in Theology, 1836; A Plea for the West, 1835; Sermons on Temperance, etc. Was married three times, first to Roxanna Foote, Sept. 19, 1797, who died 1818; then to Harriet Porter of Portland, Me. His mental traits were as follows: His imagination was apparently visionary (for his behavior was erratic) and suggestive; his memory was retentive; his methods of work on the whole unsystematic, impulsive. He had a love of music and was very susceptible to its influence. He had a piano sent from New Haven to Litchfield, learned to accompany it with the violin, while his sons, William and Edward, played the flute. He had a strong sense of humor and his household was full of cheerfulness and much hilarity, he loved pranks and jokes. He loved fishing and took much vigorous exercise, sawed wood, shoveled sand and lived much in the open air. Seldom wore an overcoat or gloves, nor carried an umbrella, except in extreme cases. He never had property nor

sought to acquire it, nor could he keep it if he had it. He had great personal courage. Thus when, at college, he caught a sneak-thief in the depth of the night he brought him to his room, made him lie on the floor until morning and then took him before a judge. He had no fear of, but loved, a thunder storm. But he was impressionable, for when told as a child by a playmate that a fiction he had invented would incur the wrath of God and cause him to be burned forever, he was deeply affected. He knew periods of depression as well as elation. He was displeased at the publication of the private diaries of great men, especially if they were of a melancholy cast or recorded great alternations of ecstasy and gloom. He "had dark hours in his early life, and was able to impart hope to the despondent." He loved action; said, "I was made for action. The Lord drove me; but I was ever ready. I have always been going at full speed." He loved human sympathy and had no words of uncharitableness, envy or jealousy. He was a great correspondent and his children showed the same trait and maintained for years a sort of circulating letter or "round robin." Enthusiastic himself, he inspired this trait in others; thus the arduous work of building up the family woodpile became a rivalry among the children. In his own work he required a mental stimulus to writing; if he had a sermon to prepare, he would talk with the neighbors up to the last moment and then rush to his study and draw up his outlines. In the pulpit he was bold to the point of audacity, and displayed great personal magnetism and an indomitable will. He preferred speaking from notes but was a careful writer. He was a reformer, a controversationalist, a temperance reformer, an optimist, liberal and progressive, but fearful of radical reform, and was extremely absent-minded. His physical health was not robust, though maintained by vigorous exercise. He suffered from dyspepsia and in the last ten years of his life was mentally enfeebled.

MOTHER.

II. 2. Roxanna (Foote) Beecher, Guilford, Conn., b. 1775—d. 1818. Daughter of Eli Foote and Roxanna (Ward) Foote. She was easily first in his fraternity of nine in intellect and goodness. She acquired the equivalent of a college education, besides the usual domestic tasks of girls of her time. She read literature and history and science; wrote and spoke French, was skilled in music, art and dressmaking. She was so sensitive and of so great natural timidity that she never spoke in company or before strangers without blushing, and in

later life was absolutely unable to lead devotions in the weekly female prayer meetings. Her family were Tories, an indication of character which is so marked a feature in her descendants. She early learned patience, self-control, efficiency and unselfishness. She never spoke an angry word, was submissive, not demonstrative, but with a profound philosophical nature, a depth of affection and a serenity that was charming. She had a love of the beautiful and the poetic temperament which Henry Ward Beecher had. She loved nature, especially flowers. Loyalty came from the Foote family, shown by the anti-slavery stand of her children; virtue and temperance came from the Ward family.

MOTHER'S FRATERNITY.

II. 3. Andrew Ward Foote, b. Nov. 9, 1776; d. Sept. 29, 1794.

II. 4. William Henry Foote, b. Sept. 8, 1778; d. Oct. 7, 1794.

These two boys died of dysentery the same year. They were youths of great promise.

II. 5. Harriet Foote, b. July 28, 1773; d. Apr. 19, 1842. Lyman Beecher says of her in comparing her with her sister Roxanna, whom he married, that she was "smart and witty, a little too keen." II, 6. Martha Foote, b. Sept. 23, 1781; d. Sept. 23, 1793; II, 7. Catherine Foote, b. Feb. 28, 1792 and d. Aug. 27, 1811. II, 8. Mary Ward Foote Hubbard.

II. 9. Samuel Edmund Foote (b. Oct. 29, 1787 and d. Nov. 1, 1858 in New Haven) was a sea captain at 18 years, a profession for which he had prepared himself by study and practice. Abandoned the sea in 1826. Resided in Cincinnati where he did much for the improvement and growth of the city. Was secretary and director to the City Water Company, and a director of the Ohio River Canal and other enterprises. Lost a fortune in the financial crisis of 1837 but gathered another and retired to New Haven in 1850. He was an adventurous spirit, and loved the roving life of a seaman. He was ingenious and invented improvements in ships' rigging and building and this trait made him useful in his public enterprises. He had great practical common sense and business ability united with large ideality. He was a man of wide interests and culture—"one of the best-educated men of his time." He spoke and wrote the French, Italian and Spanish languages fluently; and he had a wide knowledge of literature. He was generous and had a humorous combativeness that led him to attack the special theories and prejudices of his friends, sometimes prosily,

and sometimes in earnest. He married, Sept. 9, 1827, Elizabeth Betts Elliott, a distant cousin.

II. 10. Geo. Augustus Foote, Guilford, Conn. b. Dec. 9, 1789; d. Sept. 5, 1878; m. May 24, 1829, Elizabeth Spencer, b. Mar. 23, 1812; d. Aug. 29, 1898, daughter of Samuel and Elizabeth (Tuttle) Spencer.

GRANDPARENTS.

I. 1. David Beecher, a blacksmith, who worked at the same anvil his father had before him and on same old stump of the oak tree under which John Davenport preached his first sermon in New Haven. He was well read, clear-headed, with decided opinions upon questions of the day. He kept college students as boarders in order to enjoy their conversation. He was fond of politics, loved to keep pets, and was subject to hypochondriacal attacks. He was absent-minded; would collect eggs into his pocket and sit down on them. He was short in stature, like his mother, and like his father and grandfather could lift a barrel of cider and carry it into the cellar, but his grandfather, John Beecher, the immigrant, could lift so as to drink out of the bunghole. David's father was Nathaniel Beecher, six feet tall and a blacksmith, and his mother was Sarah Sperry, a woman of great piety. David's father's father was John Beecher, whose wife was a Pomeroy, a family that includes much talent in blacksmithing, iron-making and inventiveness.

I. 2. Esther Lyman, born Middletown, Conn. daughter of John Lyman, had a joyous, sparkling, hopeful temperament; was tall, well proportioned and dignified in movements. She died of tuberculosis 2 days after her son Lyman was born.

I. 3. Eli Foote, Guilford, Conn. and (I, 4) Roxanna (Ward) Foote. He was a man of fine person, polished manners and cultivated taste. He was educated for the bar and practiced a little in Guilford but eventually became a merchant and traded at the South. He was a descendant of Nathaniel Foote whose family in England had received a coat of arms with an oak tree upon it and the motto, "Loyalty and Truth" for concealing the King in an oak tree in time of danger.

III. DATA FURNISHED BY BIOGRAPHIES.

Many well-written biographies devote space to a valuable account of the "ancestry" of the person described. It is not unusual to find in such accounts evidence of the origin of the combination of traits that made their possessor successful.

EXAMPLE 1.

SUBJECT.

Lyman Abbott, b. Roxbury, Mass. Dec. 18, 1835, graduated from University of the City of New York, admitted to the bar, 1856, ordained to the Congregational ministry 1860; in literary work, 1869-88; pastor of Plymouth Church, Brooklyn, 1888-99. Author of books on law, religion, the Bible, democracy, etc. Editor of the Outlook. Characterized by industry, clearness, and simplicity of exposition; clear thinking and judgment (leading to successful prediction in social affairs), modesty, and much musical ability.

SUBJECT'S FRATERNITY.

Benjamin Vaughan Abbott, graduate of Harvard Law School, secretary of New York Code Commission, 1863-5: reviser of U. S. statutes, (16 vols) digests, etc. altogether exceeding 100 volumes. D. at 59 years, 1890. Much musical ability.

Austin Abbott, b. Boston 1831; graduated from Univ. of City of New York, 1851, practised law with Benjamin Vaughan; prepared greater part of Abbott's New York Digest and "Abbott's Forms." Wrote many other highly practical books to simplify legal procedure. Dean of Law School. Died, 1896.

Edward Abbott, b. Farmington, Me., 1841; graduated from Univ. of City of New York, 1860, and Andover Theological Seminary 1862; on U. S. Sanitary Commission, Army of the Potomac; associate editor of "The Congregationalist," 1869-1878. Joined the Protestant Episcopal denomination and had charge of St. James parish, Cambridge. Published numerous works.

FATHER.

Jacob Abbott, b. Hallowell, Maine, 1803; graduate of Bowdoin college, 1820; studied at Andover Theological Seminary 1821-24; Professor of mathematics and natural philosophy in Amherst College, 1821-24; founded young ladies' school in Boston, preached there and with his brothers founded Abbott's Institute in New York City. D. in Maine, 1879. He was a prolific writer of juvenile stories, brief histories and biographies and religious books for the general reader, and a few works in popular science. His Rollo Books (28 vols.) were enormously popular and he issued over 200 books in all. His chief characteristics were a remarkable judgment, modesty and fondness for little children.

FATHER'S FRATERNITY.

John Stevens Cabot Abbott, b. Brunswick, Maine, 1805. Associated with Jacob in management of Abbott's Institute and in preparing his brief historical biographies. Graduated from Bowdoin College, 1825; preached at various places in Massachusetts. Wrote voluminously books on Christian ethics and history. His historical works were popular but not scholarly. Rose early and worked two hours before breakfast; an assiduous student who consulted nature as much as his library. Visualized his histories before writing. Was never discomposed nor in a hurry. Died Fair Haven, Conn. 1877. (Nat. Cyclopedia, VI; 145.)

Gorham Dummer Abbott, b. Brunswick, Me., Sept. 3, 1807. Graduated Bowdoin College, 1826; studied theology at Andover; took horseback ride through South for his health. Established, with his brother Jacob, the Mount Vernon School for Young Ladies and became, 1837, pastor of Presbyterian Church at New Rochelle. Collected and tabulated data on the educational facilities, institutional methods and systems of instruction, libraries and publications for the use of schools in this and foreign countries. Organized (1836), and for some years served as secretary of, the "Society for the Diffusion of Useful Knowledge," which published selected books for school libraries. Secured useful legislation for public education. Founded private academies; was interested in studies in biblical exegesis, in history and in problems of commerce and political relations with Central America and Mexico. Died So. Natick, Aug. 4, 1874.

Samuel Phillips Abbott, founded in 1844, at Farmington, Maine, the Abbott school, popularly called "Little Blue"; a teacher and a lover of youth. Two sisters and one other brother.

FATHER'S FATHER.

———— ————, very musical.

MOTHER.

Harriet Vaughan, musical.

EXAMPLE 2.*

SUBJECT.

George Bancroft, b. Oct. 3, 1800 at Worcester, Mass. As a boy called "wild." Early schooling meagre, then at Exeter Academy where

* M. A. deWolfe Howe: "Life and Letters of George Bancroft," Scribner, 1908.

he showed traits of intellectual quickness and ambition and won (1813) the prize for best classical composition. Then at Harvard College where he bore the nickname of "The Doctor," and was elected to the Phi Beta Kappa society. Studied in Europe, 1818-1822, at Heidelberg, Göttingen and Berlin. Taught at Harvard, and later organized a secondary school for boys, 1822-31. Married Miss Dwight of Springfield, Mass. Entered political life, nominated for Governor of Massachusetts, 1844, became Secretary of the Navy under Polk, 1846, became influential in annexation of Texas and the settling of the Northwest boundary dispute. Minister to London in 1846; to Berlin, 1867; recognized as leader in diplomatic circles, died at Washington, 1891. His great literary work is his History of the United States, begun 1836, of which five volumes appeared. His work characterized by a philosophic spirit, as well as by accuracy. He had great imagination and enthusiasm, capable of large generalizations. Said of him that he had two principal faults: Getting excited over little things, and having little respect for the judgment of others.

SUBJECT'S FRATERNITY.

Lucretia Bancroft, married William Farnum.

Jane Putnam Bancroft, mother of Admiral Gherardi.

Henry Bancroft, a sea captain in the East India trade and sailing master of one of McDonough's vessels in the battle of Lake Champlain. Died at 30 years.

John Bancroft, followed the sea and was lost at sea at 32 years.

Eliza Bancroft, married "Honest John" Davis, former governor of Massachusetss and a U. S. Senator.

FATHER.

Aaron Bancroft, born at Reading, Massachusetts, Nov. 10, 1775; died at Worcester, Massachusetts, August 19, 1835. Entered Harvard College 1774, graduated with honor, 1778; given degree of D. D., 1810. On leaving college taught unsuccessfully, then went to Nova Scotia to preach. Rebelled against Calvinism and became a Unitarian; was indifferent to praise or fault finding; was president of the Unitarian association, 1825-1826; wrote in 1807 a "Life of Washington," which brought him fame.

A bright, cheerful and hospitable man who loved the society of intellectual friends; had a ready sympathy, was lively in conversation, quick and clear in perception. His mind was calm, logical, reflective,

he loved literature and its pursuits. Temperament bilious, physical organization delicate, irascible in boyhood, but later self-restrained. Affection strong, but not demonstrative. Died four months after his wife.

FATHER'S FATHER.

Deacon Samuel Bancroft.

FATHER'S FATHER'S FATHER.

Deacon Thomas Bancroft of Reading, Mass. He left a will reciting: "My history books to be divided among my three sons equally," etc. (showing his interest in history.)

MOTHER.

Lucretia Chandler; "of remarkable benevolence, had uncommon gifts of mind, playfulness and cheerfulness." As a child "cared not for history nor did I read much of travels." Read many novels, liked plays and blank verse. Always ready for amusements; the gayness of the ball room; called "black-eyed Indian."

MOTHER'S MOTHER.

Mary Church of Bristol, R. I. whose father's father was Captain Benjamin Church of King Philip's War, and a chronicler of the Indian Wars.

MOTHER'S FATHER.

John Chandler, filled various offices of importance in the provincial government of Massachusetts. Came of a family conspicuous for wealth and social place. Known as "Tory John"; fled to Halifax at the opening of the Revolution.

IV. THE RECORD OF SPECIAL TRAITS.

Almost every family has one or more interesting inheritable traits, which can be traced through two or more generations, and a record of which will be of great value. The Eugenics Record Office issues small blank schedules for the recording of such data. One of these is reproduced below. The first line is for the name and address of the person responsible for filling out the schedule. The second is for the name and trait of some person in the family who serves as a starting point in the description and is called "subject." The third line is for the subject's address, in order that further details may be inquired into.

Name of Collaborator B. M—

Full Name of Subject W. J. W—

Present Address A——— M—

Full Description of Trait in Subject red hair

Address A——— M—

Town and State A——, M

Date June 1, 1912

GIVE BELOW THE NUMBER OF RELATIVES THAT HAVE THE SAME TRAIT AS SUBJECT (PRES) AND THE NUMBER WITHOUT IT (ABS)

TRAIT	Pres	Abs	TRAIT	Pres	Abs	TRAIT	Pres	Abs		Pres	Abs		Pres	Abs
1. Father	X		5. Father's Father		X	9 Mother's Father		?	13. ~~Own~~ 2d Cousins, Father's Side	1	0	17 Wife (or Husband) If any	—	—
2. Mother	X		6. Father's Mother		X	10. Mother's Mother		?	14. Own Cousins, Mother's Side	—	—	18. Consort's Ancestors	—	—
3. Brothers	1	0	7. Father's Brothers	—	—	11 Mother's Brothers	—	—	15. Brother's Children	—	—	19. Consort's Collaterals	—	—
4. Sisters	2	0	8. Father's Sisters	—	—	12. Mother's Sisters	—	—	16. Sister's Children	—	—	20. Own Children (If any)	—	—

DESCRIPTION OF RELATIVES HAVING THE SAME TRAIT AS SUBJECT.

RELATIONSHIP (NO.)	NAME	ADDRESS	DESCRIPTION
1	J. W—	A——— M—	red hair
2	Nellie C—	do	red hair
3	Elmo W—	do	red hair
4	Jean W— Lerna W—	do	red hair
13	Robert M—	do	red hair

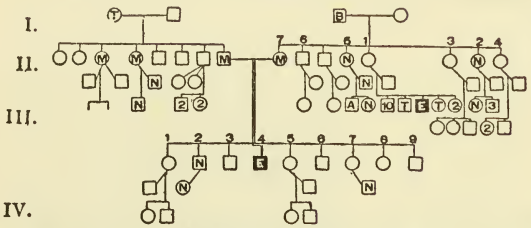
Note here if parents or consort (if married) are consanguineous; and degree

(OVER)

IF MORE SPACE IS NEEDED USE A SECOND BLANK.

FIG. 6.

DESCRIPTION: The earliest generation is at the top of chart, the youngest at bottom. Short vertical lines suspend symbols of the members of a fraternity from the long horizontal fraternity line. Short horizontal or oblique lines connect consorts. Symbols that represent individuals described on the other side of this sheet to be shaded.



SAMPLE GENEALOGICAL TABLE

EUGENICS RECORD OFFICE.

This blank is for the use of Physicians, Teachers, Social Workers, Parents and others in studies upon the inheritance of various interesting traits. Addresses are asked for in order that, if there is no objection, further inquiries may be made.

Several blanks may be used for a family with cross reference from one blank to the other.

☞ALL DATA WILL BE HELD AS STRICTLY CONFIDENTIAL, AND NO NAMES WILL BE PUBLISHED.

The blanks filled out should be mailed to: Eugenics Record Office, Cold Spring Harbor, N. Y., Blanks for full Family Records furnished free on application.

SPACE BELOW FOR A GENEALOGICAL TABLE, PREPARED LIKE SAMPLE ABOVE [],—MALES; O,—FEMALES

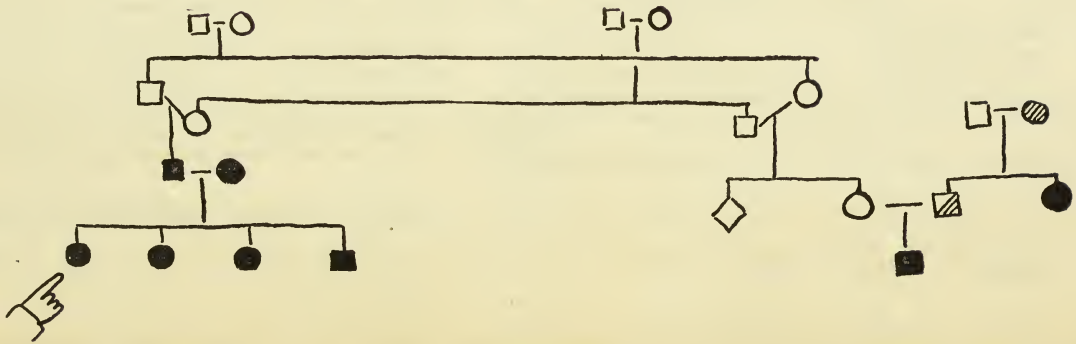


Fig. 6a.

Name of Collaborator Henry P. Marple, MD. Address 2246 Michigan Av.,

Full Name of Subject William T Henderson Town and State Milwaukee, Wisc.

Present Address 17 Broad St., Lincoln, Nebr. Date July 28, 1912

Full Description of Trait in Subject Hare lip which is not extreme but suffi-cient to require a surgical operation

GIVE BELOW THE NUMBER OF RELATIVES THAT HAVE THE SAME TRAIT AS SUBJECT (PRES) AND THE NUMBER WITHOUT IT (ABS)

TRAIT	Pres	Abs	TRAIT	Pres	Abs	TRAIT	Pres	Abs	TRAIT	Pres	Abs	TRAIT	Pres	Abs
1. Father		X	5. Father's Father	X		9. Mother's Father		X	13. Own Cousins, Father's Side (13a Fath. moth. sisters)	1	8	17. Wife (or Husband) If any		—
2. Mother		X	6. Father's Mother		X	10. Mother's Mother		X	14. Own Cousins, Mother's Side (14a Moth. moth's niece)	1	3	18. Consort's Ancestors		—
3. Brothers	1	0	7. Father's Brothers		5	11. Mother's Brothers		1	15. Brother's Children			19. Consort's Collaterals		—
4. Sisters	0	3	8. Father's Sisters		2	12. Mother's Sisters		—	16. Sister's Children		2	20. Own Children (If any)		—

DESCRIPTION OF RELATIVES HAVING THE SAME TRAIT AS SUBJECT.

RELATIONSHIP (NO.)	NAME	ADDRESS	DESCRIPTION
3	A. H —	17 Broad St., Lincoln, Nebr.	hare lip and cleft palate, recently mar
5	B. H —	Fairview, Oxford Co. Ohio	scar on lip, repaired hare lip ?
13a	C. I —	dead	hare lip, died young
14a	D. K.	dead	hare lip

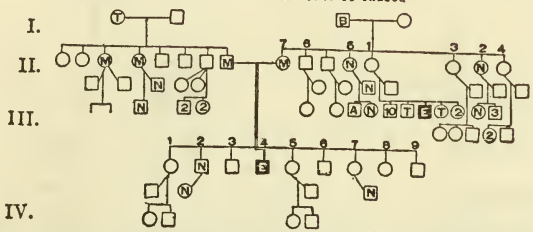
Note here if parents or consort (if married) are consanguineous; and degree

(OVER)

IF MORE SPACE IS NEEDED USE A SECOND BLANK.

FIG. 7.

DESCRIPTION: The earliest generation is at the top of chart, the youngest at bottom. Short vertical lines suspend symbols of the members of a fraternity from the long horizontal fraternity line. Short horizontal or oblique lines connect consorts. Symbols that represent individuals described on the other side of this sheet to be shaded



SAMPLE GENEALOGICAL TABLE

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Several blanks may be used for a family with cross reference from one blank to the other

☞ALL DATA WILL BE HELD AS STRICTLY CONFIDENTIAL, AND NO NAMES WILL BE PUBLISHED.

The blanks filled out should be mailed to: Eugenics Record Office, Cold Spring Harbor, N. Y., Blanks for full Family Records furnished free on application.

SPACE BELOW FOR A GENEALOGICAL TABLE, PREPARED LIKE SAMPLE ABOVE □,—MALES; ○,—FEMALES

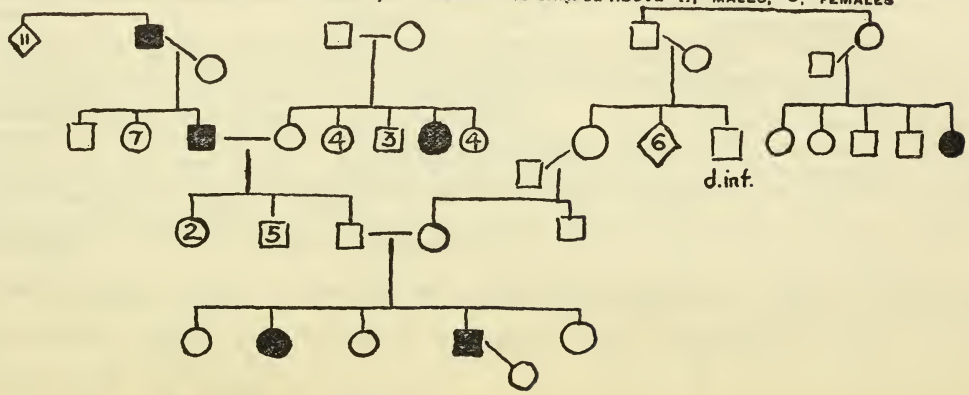

Fig. 7a.

The fourth and fifth lines are for a brief record of the inheritable trait as it occurs in the subject. The middle of this face of the schedule is devoted to a statistical summary of the distribution of the trait in the relatives of the subject; each relative or class of relatives is numbered for reference to the descriptions in the lower part of the schedule. Where there are two affected brothers, they may be designated as 3a, 3b, and so on. In 3, 4, 7, 8, 11 to 20 give the number of the persons who have the same trait as the subject and the number who lack it. In the lower part of the schedule is given the name and address of the relatives who have the same trait as the subject and a brief description of the trait as it occurs in them. The last lines ask for information as to consanguinity.

The obverse of the schedule is for a genealogical chart which shall set forth the precise relationships of the members of the family—the "subject" being designated by an index ☞. In the chart, squares indicate male individuals, circles females. Symbols for brothers and sisters are suspended from the same horizontal line. Consorts (i. e. wives or husbands) are connected by means of single (or double) oblique lines, preferably single. Any fraternity is connected with its parents by a short vertical line. Individuals who bear the same trait may be represented by solid black symbols; those who show the trait, but less marked, by shaded symbols. Teachers have a great opportunity in securing records of special traits.

In the first example given (Figs. 6 and 6a), we have in the upper (first) generation two pairs of parents—each the parents of two children; the son of one of these parents married the daughter of the other pair; and the daughter of the first, the son of the second. The first couple had a son with the trait in question, and he married a similar. Their four children had the trait. The second couple had only two children of whom the older (the daughter) married a man with the trait slightly marked, whose mother was like himself, but had a daughter with the trait well marked. The son of this pair had the trait.

In the second example (Figs. 7 and 7a) we have in the first generation four pairs of parents three of which are parents of persons with hare lip. In the second generation one parent has hare lip and the other parent has an affected sister; while of the second pair of parents one is known to have a first cousin with hare lip. Then a generation is skipped, followed by the last generation with two out of five in the fraternity who have hare lip.

V. RECORDS OF RECENT IMMIGRANTS.

The stream of immigrants, often amounting to thousands in one day, that enters this country constitutes a great problem, inasmuch as the probable nature of their germ plasm—the condition of their progeny—is unknown. Nor will an inspection of the body of the immigrant enable us to decide whether he or she will produce socially desirable offspring. There is only one reasonable way to keep up our social standards, and that is to exclude immigrants who obviously belong to bad strains. Such strains can be detected best by studies made at the country of emigration.

To enforce the importance of "blood" and family traits it is desirable to study the families of recent immigrants who have arrived in America during the great immigration that began in 1880 and has not yet ceased. As a sort of model of such studies, of which we ought to have hundreds, we reproduce a report by Rev. W. E. Davenport, Head Worker at the Italian Settlement, Brooklyn, N. Y.

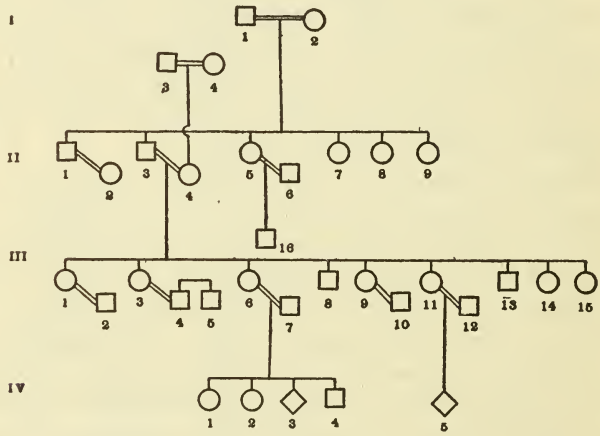

FIG. 8.

THE A—— FAMILY, FROM SICILY.

Thirteen years ago, Rosario A—— (II, 3, Fig. 8), born 1856, pursued in Bagheria near Palermo, Sicily, his deceased father's trade of cooper. He was tall, strong, muscular and active, and had, a few years before, weighed over two hundred pounds; but he suffered occasionally from early rupture. His hair and eyes were black, his

complexion swarthy, his forehead low and square, and his features regular.

Economically he was successful. He lived in his own two-storied house, the lower part of which contained a wine-press and cooperage shop. He made and sold much wine every Fall, employing at the vintage season four or five men; he also made casks and barrels. Seven years earlier he had bought a lemon orchard for 10,000 lire, hoping that the income from it would help maintain his family. He never saw army service, and was illiterate.

His blue-eyed father (I, 1) died of shock, a sudden injury, eight years before, aged 65. His strong, well-preserved, devoted mother (I, 2), 70 years old, looked to him for support. His only brother (II, 1) had married, and moved to Palermo, where he prospered in the dry-goods business. Of his four sisters, all married, two were in fairly prosperous circumstances. One, Pauline (II, 5), born 1852, is short and strong, has dark eyes and dark hair, a broad forehead and regular features. She married Leonardo P. but after she was 50 years old, she left him and came to Brooklyn (1905) to live with a married son who was a longshoreman.

In 1877, Rosario A—— married Guiseppina C—— (II, 4), of medium height, fair complexion, brown hair and eyes. She is fond of jewelry, vain of her plain looks, superstitious, prone to gossip about her neighbors, shiftless and careless of her daily duties, and with an unruly temper. Her father (I, 3), a clerk, died young; her blue-eyed mother (I, 4) died of cholera in 1873.

By 1898, Rosario had met with business reverses. Owing to the ravages of the Phylloxera, the wine crops for two years had failed, and the dowry of 5,000 lire that he had given his eldest daughter (III, 1) on her marriage had depleted his purse; so he came with his eldest son (III, 8) to Brooklyn to improve his fortune. He quickly found work in Arbuckle's cooperage, and about a year later his son did likewise. Then, in 1899 his second daughter (III, 3) was sent for to help keep the rooms and earn wages in a factory. Finally, in 1902, with good work and thrift, Rosario was able to send for his wife and other children except the married daughter. They arrived Feb. 23, 1903. Three months later Rosario was taken to the Brooklyn Hospital, suffering from hernia and intestinal stricture, and was operated upon successfully. But, despite the doctor's warning, he returned to work too soon, his trouble recurred in a severe form, and he died, December 1903. With the aid of her second daughter, his wife retained her

apartment and brought up her unmarried children. Stomach trouble developed in 1903, diagnosed first as a tumor and, in 1905, as cancer. Despite a weak heart, she worked in a factory intermittently to make up her rent; but, throughout 1910, she failed rapidly, attended by a nurse from the Bureau of Charities, and died the same year.

Of the children of Rosario and Guiseppina, the eldest is Guiseppina (III, 1), born 1878 near Palermo, and still living there. She is of medium height and has brown hair and blue eyes and regular features. Her husband, Nicolo R—— (III, 2), who has simplex brown eyes, was, at the time of their marriage, and *is,* a thrifty raiser of and dealer in lemons. The second child is Francesca (III, 3), born 1884. She is of medium stature, has chestnut hair and eyes, a lighter complexion, and regular features, and is very illiterate. Since her marriage in 1902 to John L—— (III, 4), she had tubercular cysts removed from her neck and chest. John L—— reached Brooklyn in 1896, from Ponticella, near Bagheria. He is strong, of medium height, has a swarthy complexion and coal-black eyes. He is illiterate but energetic, honest and affectionate. Brought up in Italy as a fisherman, he here first worked on the docks; in 1901 he started to peddle fish with a basket license, and later, like his brother Sebastino III, 5, (who is also married and lives on Hudson Avenue, Brooklyn) he opened a fish store. He improved financially, but in 1908, he was struck by a falling cask on the docks, where he occasionally worked, and went to the hospital with both collarbones broken. In 1911, he secured damages in the sum of $1,000, of which all but $450 went to lawyers and witnesses. From March 1911 he and his family have maintained a small fish store on Atlantic Avenue, paying $53.00 rent per month, and doing an unsatisfactory business.

The third child of Rosario and Guiseppina is Concetta (III, 6), b. 1888, a fairly strong young woman of medium height, brown hair and eyes, fair complexion, and regular features except that the lower jaw protrudes somewhat. She is industrious and particularly neat and increasingly tasteful in the care and decoration of her rooms. She suffered in 1905 from throat trouble and "nervouness" which she has since overcome. From 1902 until her marriage in 1906 she was employed in Gair's box factory. She married Alfonso A—— (III, 7), b. 1889 in Cefalu. He is large-bodied, strong, has wavy brown hair and brown eyes and a full face; has good sexual habits, likes music, is socially inclined and an active member of an Italia-American political club. He is loyal but superstitious and lacking in initiative,

reflection and mental force. He was convicted, in 1906, for taking a sack of iron rivets from the yard of the company where he was employed. A month's imprisonment strengthened a naturally good inclination, or served as an efficient deterrent, but he is still liable in some things to "lose his head." Suffers from hernia and has periodical attacks of tonsilitis probably aggravated by the poisonous fumes in the paint factory where he has been employed for the past four years. He earns $12.00 per week on which he maintains his family, paying $12.00 per month for rent. His father, Salvatore, is a tall, heavily-built, gross-featured man with large hands, and curly black hair. He ran a marionette theatre in 1901-3; bears a bad reputation and left for Baltimore in 1900, under charge for betrayal of girls, both in Italy and America. His wife remained in Brooklyn, living with a married daughter. The children of Concetta and Alfonso are: Antoinette (IV, 1), b. 1907, heavy, fair, curly brown hair, chestnut eyes, broad face and forehead. Salvatore (IV, 2), b. 1908, of stocky build, fair skin, curly flaxen hair and broad forehead; infant, b. 1909 and died; Rosario (IV, 4), b. 1911.

The fourth child of Rosario and Guiseppina is John (III, 8), b. 1887, who came to America with his father in 1898. He is tall, with blue eyes, chestnut hair, light complexion and of neat and attractive appearance. He is deficient in reflection, resolution and mental force. He likes reading in both English and Italian, and plays the guitar. He has had bad sexual habits from boyhood, suffered in 1903 from pleurisy, nervous trouble and lung weakness, but recuperated in consequence of a summer in the country. Began factory work in 1900, entered Arbuckle's sugar house in 1905, and worked there for a year. Then was attacked by pneumonia, typhoid, and venereal disease and sent to Cumberland Street Hospital where valvular disease of the heart developed. Returned to Italy August, 1906, where he lived with his oldest sister one year. Returning to Brooklyn, 1907, he first re-entered the factory, but as he suffered from persistent heart weakness and venereal trouble, he was unable to continue such heavy work, and became a barber, in which occupation he earns five to seven dollars a week, and lives in a rented room with his married sister whom he pays $2.25 per month rent. He was arrested 1909 at Waterbury, Conn., charged with interfering with the law in the case of Guiseppi A——, who was working the "film-plan game" through the state. After 3 weeks detention he was discharged. Became an American citizen in the autumn of 1910.

The fifth child is Vincenzina (III, 9), b. 1891. She is slight, straight, under five feet tall, has grey-brown eyes, brown hair, muddy complexion, low narrow forehead, high cheek bones, narrow face and high occiput; is illiterate and cannot write her name; has an irritable disposition and even when grown up would tear her hair and cry out on slight provocation; uses bad language. When 13, entered Gair's box factory and was discharged for bad language; worked for three months in a private family, gaining some idea of neatness in personal habits and self-control; has since worked in various places. She became engaged, May 1909, to Guiseppa A—— who was arrested in Connecticut 1909, as stated above, and sentenced for two years. In 1910, she made the acquaintance of John M—— and in January 1911 secured a marriage license at the New York City Hall. This she stated she regarded as a legal marriage, and lived with John M. for a month in a furnished room while she continued to work in a factory for $5.50 per week. J. M. then left her and she secured a warrant for his arrest and went to live with his parents, paying them $3.00 per week board from her earnings. May 1, J. M. returned to her and threatened her. In an altercation, May 12, she stabbed him slightly, was arrested, and held for assault, but later discharged; while John was arrested charged with seduction under promise of marriage.

The sixth child is Sabrino (III, 11), b. 1893; plump and short, with dark complexion, black eyes and hair, full face and attractive expression. She reads and writes in Italian; worked in Gair's box factory from her thirteenth year, earning $4.50 to $7.00 per week. In 1908, she became engaged to Camillo M. (III, 12) eloped with him in the summer of 1909 and married him shortly after. C. M. is tall, brown-haired, illiterate, quick and attractive in manner but indisposed to steady work. In March, 1910, Sabrino became a mother; but her child died a month later and she underwent an operation in the Brooklyn Hospital and remained there until July. She has since worked in the factory at $7.00 per week, but, owing to poor health that requires a doctor's care, she employs herself at home making ostrich feather plumes, at which she earns about $8.00, while her husband, who works on the railroad, sends her monthly or semi-monthly remittances.

The seventh child is Vincenzo (III, 13), b. 1894. He has abundant brown hair and chestnut eyes, ruddy complexion and low forehead. Grew rapidly, and at fifteen, reached five feet ten. Easy-going, companionable, strong, moderately honest and of cheerful disposition; he

gambles inordinately and saves nothing; attended public schools irregularly three or four years, but cannot read or write. Found employment without working papers, 1900, calling himself then sixteen, at the Matchless Mfg. Co., 1910, for four months and gave satisfaction. January, 1911, handles newspapers and works thereafter irregularly.

The eighth child is Therese (III, 14), b. 1890 and died 1898.

The ninth child is Mary (III, 15), b. 1899, slight build, brown hair and eyes, fair complexion and a narrow face; she has a good disposition and is always ready to help but is slightly incapable in performance; is slow at school but is passing through the primer. At her mother's death she was sent to St. Joseph's Orphan Asylum, but at Christmas time was taken out by Alfonse A—— to live with a sister, since which time she has attended school irregularly. She learns little at housework, but runs errands.

VI. RECORDS OF NEGRO-WHITE CROSSES.

It is desirable, from many points of view, to *study* the question of the result of negro-white crosses—a question over which so much heat has been raised. Modern studies in heredity justify the conclusion that, under certain circumstances, negro-white crosses might yield, in the second and third generation, *some* persons who had admirable combination of traits, fit to take their place with the best of Caucasian descent.

To test the conclusion, studies have been instituted at the Eugenics Record Office on the method of inheritance of skin color and some other facial traits. The skin color was measured by the color top (color mixer, made by the Milton Bradley Co., Springfield, Mass.), by which means the proportion of black (N), red (R), yellow (Y), and white (W) is quantitatively expressed. The sample selected is that of a Jamaican family: The two grandparents (Gen. I) of whom something is known are mulattoes or approximately so. In the second generation we have children in whose skin color the percentage of black varies from 10 (practically white) to 47. And in the third generation (descended from II, 2 and II, 1) it varies from N 15 to N 40. Thus, some of the children and grandchildren have practically white skins.

A FAMILY HISTORY OF NEGRO-WHITE CROSSES FROM JAMAICA (Fig. 9).

BY FLORENCE H. DANIELSON.

Both Parents of Mixed Blood; the Fraternity Variable in Color.

I. 1. R. B., son of a mulatto woman and the son of a white man and Madagascar woman; brown eyes, black (almost straight) hair, skin color: N 15, R 41, Y 20, W 24.

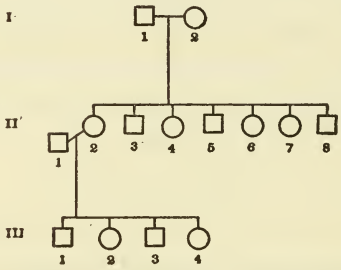

FIG. 9.

I. 2. D. D., daughter of two mulatto parents; hazel or grayish eyes, hair very curly and dark brown, skin color: N 20, R 45, Y 16, W 19. She and I, 1 have nine lawful children of whom 7 are described below (II, 2, 3, 4, 5, 6, 7, 8).

II. 2. R. B., hazel eyes, dark brown somewhat curly hair, skin color: N 11, R 51, Y 20, W 18. Married.

II. 1. R. E., son of black woman and a quadroon man. Brown eyes and nearly typical negro hair, N 25, R 37, Y 20, W 18. They have four children: III, 1, 2, 3, 4.

III. 1. G. E., 10 years; dark brown eyes; curly, decidedly negroid hair; skin color: N 40, R 40, Y 10, W 10.

III. 2. C. E., 8 years, light brown eyes, medium brown curly or wavy hair, skin color: N 35, R 36, Y 15, W 14.

III. 3. L. E., 4½ years, light brown or hazel eyes, medium brown curly or wavy hair, skin color: N 15, R 51, Y 18, W 16.

III. 4. L. E., 2 years, dark brown eyes like father; light brown wavy hair, skin color like III, 3.

II. 3. H. B., at Colon, 30 years, dentist, as dark as II, 8.

II. 4. M. B., at Colon, 26 years; not quite as dark as II, 8, but the darkest of the girls.

II. 5. R. B., 24 years, light brown or hazel eyes, dark brown very curly hair, skin color: N 17, R 44, Y 15, W 24.

II. 6. B. B., 22 years, medium brown eyes, very curly medium brown hair, skin a little tanned: N 20, R 45, Y 18, W 17.

II. 7. M. B., 20 years; gray eyes; dark brown hair, very curly; fairest in family, skin color: N 10, R 49, Y 16, W 25.

II. 8. L. B., 17 years, light brown eyes, almost typical hair; darkest in family, skin: N 47, R 41, Y 16, W 16.

VII. RECORDS OF THE FEEBLE-MINDED AND PAUPERS.

a. THE FIELD WORKER'S REPORT.

An important part of the investigations of our field workers has been tracing the family history of the feeble-minded, including paupers. To the inquiry, who are the feeble-minded? the only answer that can be given is that they are the socially inadequate; who lack one or more traits that are necessary for them to take their part in forwarding the world's work under the conditions of competition afforded by the society in which they live. If they fail in their part they become private or public charges or a social menace.

One history of a family of the feeble-minded from a rural community, is given, with its chart (Fig. 10), below.

FAMILY HISTORY OF EMMA H.

BY H. T. REEVES.

I. 1. William H, *feebleminded* (moron) lived in a little log cabin on the farm belonging to the father of Mrs. Fannie L an old lady living in —— —— Co., N. J. He was sick for a long time before he died and was "on the town."

I. 2. Annie A, wife of William, no data obtainable at present. Children of William H and Annie A were:

II. 1. John H who never married; died of small pox.

II. 2. Peter H, *feebleminded,* who married Sarah H. III, 9. There were no children by this marriage.

II. 3. George, was not bright, stuttered. Married Mary D.

II. 4. Susan H, *feebleminded,* married Joseph H who met his death accidentally by drowning. Nothing can be learned of the cause of Susan's death.

II. 5. William H, *feebleminded,* born March 12, 1819, died May 8, 1869 of tuberculosis.

II. 6. Jane B, born July 23, 1822, came of low grade famliy, living in the mountains near F——. The family seems to have disappeared. Jane was insane; the trouble seems to have been acute mania according to description. She would have periodic spells of raving and finally drowned herself. The date of her death is not given in the family Bible and no one whom I interviewed could enlighten me.

II. 7. Sarah B, died Jan. 31, 1850.

II. 8. Lydia B, died March 4, 1848.

III. 4. David H, first child of William H and Jane B, born January 27, 1843. This old man is decidedly *feebleminded* and has been "on the town" once or twice, at present he is living with George B at —— ——, N. J., and is able to do enough work about the farm to pay for his board and clothes. David's first wife, Euphemia H has been dead about 30 years. He married his second wife, Anna Jane B, Jan. 14, 1909. This woman is very defective, was the widow of a man by the name of W——, by whom she had three children: Jennie, born

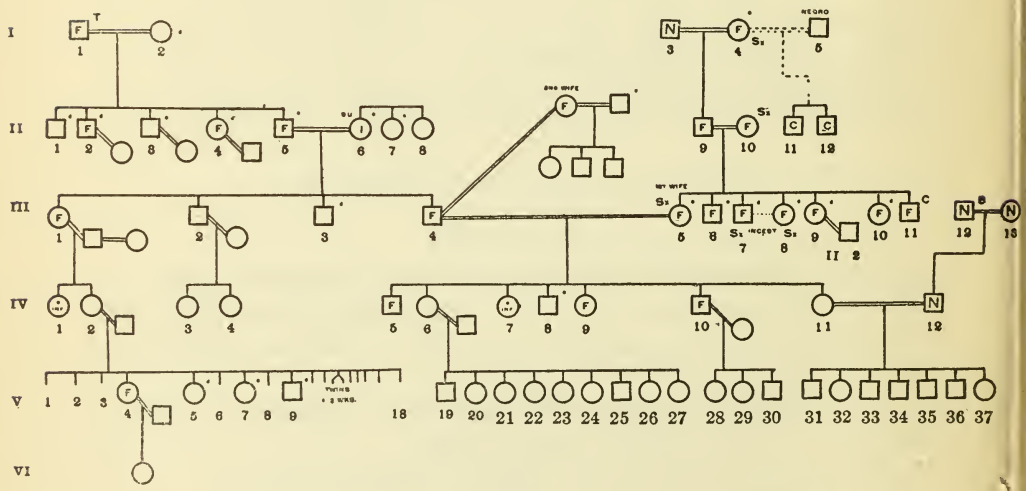

FIG. 10.

September 9, 1887; Joseph, born Jan. 7, 1890; and Robert W——, born August 29, 1893.

David had three brothers and sisters: III, 1, Catherine Ann, *feebleminded* who married William W of C. She had two children,

one died in infancy of measles, the mother dying at nearly the same time from this disease. The other child, Mary Ann, born Oct. 21, 1869 was a very tiny infant when her mother died, but lived to grow up. She married a laborer by the name of James H and has had eighteen children, of whom 13 have lived so far. Mary Ann's step-mother declared all the children were bright with the exception of Nellie F, V 4, who went to school for thirteen years and could never learn to read or write. Nellie is married to a man by the name of H and is living out in the country somewhere. I tried to find the H family—they are living in P——, but as yet have not located them.

III. 2. Is John H, born April 18, 1853, the youngest of this family. His mentality is better by far than that of his brother, David. He and his family live at A——. Interviewed them at suppertime. They did not seem to be at all perturbed by my apparently inopportune visit. John does not appear to be feebleminded. So far all information I have been able to get concerning him has been to the effect that he is "all right." His two daughters are bright girls, both of them are working at present in a shirt factory in the neighborhood. The opinions concerning John's wife all agree that "she isn't what she ought to be, and leads a bad life most of the time." She is a large, fine-looking woman, with a hard-featured and decidedly sensual face. She often has deserted John and lived for varying lengths of time with other men, but John has always taken her back when she has returned from these expeditions, thereby showing much patience or much indifference —it is difficult to tell which.

III. 3. Is George H, born December 21, 1846. He died when he was a small boy.

As has been stated, David III, 4 married Euphemia H who comes of low stock. Mrs. L of N—— G—— told me much concerning her pedigree: The earliest known ancestor was Henry H, who came of good family. The H——'s of the present day are normal, well-respected persons of affairs in the community. Henry married Old Sal I, 4 who came of a tribe of mountaineers called B. Whether this was a surname or nickname the old people of N—— G—— would not tell me. After Henry's death, Old Sal who was *feebleminded* lived with a negro by the name of P. By him she had two halfbreed sons, Coon II, 11 and Jack II, 12. These two boys were the terror of the neighborhood on account of their *criminalistic* tendencies, and both served terms in state's prison. H H and S B had one son who was deficient, Peter II,9. He married Kate G, who was also *feebleminded* and a sex pervert

as well. Their children were of varying degrees of deficiency as follows:

III. 6. William Henry, *feebleminded,* very little is known of this man as he died years ago. It is supposed that he never married.

III. 7. Elisha, *very deficient* indeed; he never married but was the father of a child born to his sister Kate Ann, III, 8, who was also of extremely low mental grade. It is just possible that the existence of this child may be traced. It was born in the H—— county poorhouse about thirty years ago.

III. 9. Sarah who married Peter H.

III. 10. Susan, feebleminded, who never married.

III. 11. Jesse who was "lacking" but who had sense enough to steal his sister Euphemia's savings and decamp. He is supposed to be still living somewhere in the middle West.

III. 5. Euphemia was next to the youngest. She was not very feebleminded, but was decidedly a "little off." She never could learn to count, even though Mrs. L's children tried hard to teach her. She was in the home of Mrs. L for about seven years and married David H, August 30, 1868. Her first child IV, 5 William is *feebleminded,* and has the reputation of being the village fool. (b. Oct. 9, 1869.)

IV. 6. Charles E, born Nov. 26, 1871. This man is said to be "all right" by those who have known him all his life. He is a pleasant looking man, vigorous and does not show any stigmata of any sort. He is extremely shiftless and lazy, however, is a tenant farmer but all the buildings and implements about the little farm he has rented showed neglect. There is nothing about his appearance that reminds one at all of his father, "Old Dave"; it is quite possible considering the loose morals of his mother who "went after the men" that his parentage is not what it is supposed to be. At all events he is a borderline case undoubtedly, as is also his wife, Rose C, a cheerful, loquacious person who was ready to show off her brood of nine dirty, noisy, ill-kept children. The oldest child is 12 years old. It will take some time before their mentality can be determnied, but I learned their names and ages.

V. 19. George, was away at work; b. 1899.

V. 20. Stella, also away at work, b. 1900.

V. 21. Mildred, b. 1903.

V. 22. Florence, b. 1904.

V. 23. Irene, b. 1906.

V. 24. Rilly, Irene's twin sister.

V. 25. John, b. 1907.
V. 26. Wilhelmina, b. 1909.
V. 27. Ruth, b. 1910.

Going back to the fourth generation, IV, 7 is Jane, who died at the age of two years, and IV, 8 is Alva L, who died in infancy. IV, 9 is Emma who is at the State Institution in Vineland. She was born Dec. 18, 1879. Has proved to be a trainable case. Helps in the dining room, is a member of the gymnasium class, etc.

IV. 10. Is Ben, who has not yet been interviewed. He was born Oct. 2, 1881, and has so many pecularities of temper he may be justly classed with his feebleminded brothers and sisters. He is of a *wandering* disposition and finds it hard to stick to one job for any length of time. In 1906 he married Minnie B and is living with his three small children somewhere near C.

Annie, the youngest child of David and Euphemia was born March 15, 1886. She is another borderline case; is quite pretty and shows no noticeable defect though she is reported to be rather "soft and silly and not very bright." She married Charles H, a normal man and has seven children who offered a pleasing contrast to those of Elwood and Rose, even though they were almost as dirty and neglected looking.

V. 31. John Sharp M H, b. June 14, 1901.
V. 32. Marion M, b. June 8, 1902.
V. 33. Charles, b. Oct. 30, 1903.
V. 34. Raymond, b. Nov. 8, 1905.
V. 35. Walter, b. Feb. 3, 1907.
V. 36. Roy, b. April 19, 1908.
V. 37. Elizabeth, b. Feb. 23, 1911.

Charles H, IV, 12, comes of good parentage, his father is William H who has been blind for fifteen years, his mother IV, 13 was Mary B who is perfectly normal as far as the character of feeblemindness is concerned and comes of normal stock.

IV. 12. William H, is related distantly.

b. DESCRIPTION OF A FAMILY OF THE FEEBLE-MINDED.

A fragment to illustrate the style of description suitable for publication.

This fragment is of the Nam family, of which over 800 persons are known, and have been analyzed (Fig. 10).

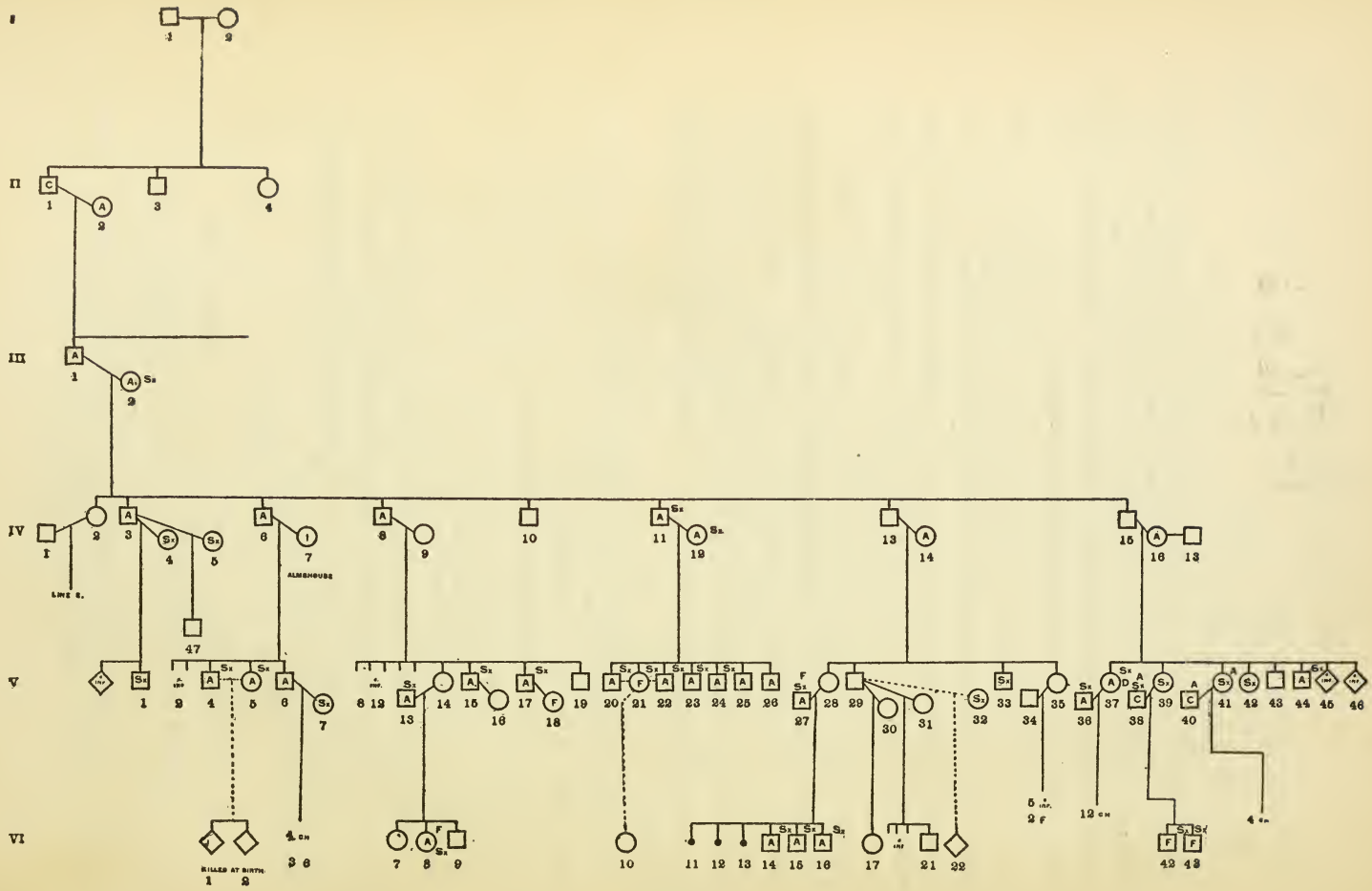

FIG. 11.

THE NAM FAMILY.

(Compiled from Data Gathered by Dr. A. H. Estabrook.)

From I, 1 were derived two sons and a daughter (II, 1, 3, 4). One son (II, 1), an incapable pauper, broke into a store in F——, for which he served a term in state's prison. The other son (II, 3) was an indigent woodsman. The daughter (II, 4) was chaste, self-esteeming, civil and neat; she died in 1865 of old age.

II, 1 married an unambitious, alcoholic and doubtless deficient woman and had by her three children. Of these, III, 1, was lazy and alcoholic. He got a pension as an ex-soldier in the Civil War, and was a pauper receiving out-door aid; died of cerebral hemorrhages. He married III, 2, licentious in youth and alcoholic, who bore him eight children (IV, 2, 3, 6, 8, 10, 11, 13, 15) all of Nam Hollow. The first, IV, 2, was a suspicious, causationless, alcoholic harlot who married a cousin (IV, 1), a slow, unambitious, honest, chaste, illiterate man, equipped with a good memory but of no initiative or reasoning power; a pauper living in a shack in Nam Hollow; a man derived from an honest father but slattern mother, and of low stock. She, IV, 2, died in 1907 of pleuropneumonia. The progeny, which will be described under Line E were all typical Nams, indolent and unable to learn at school, the men alcoholic and the women harlots.

The next, IV, 3, was an indolent, inefficient, alcoholic, illiterate man, who lived in N. H. successively with 2 women; had three children, and died in 1903 of dropsy. He had by IV, 4, a harlot who died of tuberculosis in 1893, two children, V, 1, of whom the latter died young. Their mother's fraternity, of Canadian origin, was not without mechanical ability, but full of licentiousness. The son, V, 1, though licentious, showed the influence of the outside blood in his ambition, temperance, and pride in his personal appearance. The other woman, IV, 5, was a cousin, incapable of learning, indolent, alcoholic, and a harlot. She was in the House of Refuge for Women, where her child was born, in a number of other correctional institutions, in various houses of prostitution; cohabited with an Italian in New York, where she contracted syphilis, and died in 1908 of pulmonary tuberculosis. This belongs to one of the worst strains of the Nams, which we shall consider later. The ten-year old son of this pair, V, 47, is a stubborn, uncontrollable mischief-maker who ran away from the orphan asylum where he had been placed. The next member of the Nam fraternity, IV, 6, is active, industrious, ingenious, somewhat ambitious but an

alcoholic man who married his cousin, IV, 7, a woman whose sense of causation is absent, has hysteria, is called "crazy," and has received temporary aid during four years, and has lived in the county house almost continuously from 1894 to 1902. Died, 1905, of pleurisy. Her fraternity shows typical Nam laziness, together with much taciturnity. From this pair came six offspring, of which two died soon after birth. The eldest son, V, 4, was lazy and unambitious, disorderly when intoxicated, and has cohabited with his equally disorderly and alcoholic sister and has had by her two children, who were both destroyed by the mother at birth. There remains a Nam-like, alcoholic son, V, 6, who works rather steadily at wood-chopping. He has cohabited for the past seven years with his cousin, V, 7, an active, talkative but mentally retarded girl, with complex sex relations. Of their four children, all born in Nam Hollow, one died at six months, the others (6 to 3 years old) are shy and slow. We come now to:

IV, 8 with the slow, unambitious, quiet traits of most Nams. Though alcoholic, he is a good worker and with the help of his son, IV, 19, has recently completed a new house. He married a cousin, IV, 9, (sister of 7, described a few lines above; slow, listless, shy, taciturn, unambitious, illiterate, eccentric, like her sister at times) and had by her nine children of whom 5 died young. The first, V, 14, b. 1879, has some of the best traits of this line; active, industrious, neat, orderly, she has the impulse to do well and lives in much better circumstances than others in the Hollow. By V, 13, an indolent, unambitious, alcoholic, licentious man who later deserted her, and served a prison term for non-support, she had three children, of whom one girl has the mental and moral traits of her mother; the other girl at 13 is feebleminded, licentious and intemperate, while the 8 year old boy is lagging, careless and always in mischief, and runs away from home. The second of the fraternity (V, 15, b. 1885) is indolent and unambitious, did poorly at school is mildly intemperate and licentious at times. Married a cousin. The next, V, 17, b. 1887, is a Nam-like alcoholic, licentious male; a stammerer and a fitful worker; he recently married a feebleminded cousin. Finally, V, 19 is an active, industrious, thrifty, temperate and somewhat chaste young man who owns a pair of horses and helped his father build a house.

To go back a generation, we come next to IV, 10, b. 1860, lazy, died of tuberculosis, 1880. Then comes IV, 11, a Nam-like male, alcoholic and formerly licentious, married to a cousin IV, 12, who is active, industrious, unambitious and irascible, does house work and

earns all that is brought into the family; a harlot and alcoholic. Lives in poverty in a hovel near A——. Of nine children, seven (V, 20-26) survive. We have now by inbreeding defectives reached nearly a pure type. The six sons are practically all alike in showing the typical Nam traits, including alcoholism and (with possibly two exceptions) licentiousness. The only daughter, b. 1887, is feebleminded, has committed incest with her brothers, and has an illegitimate daughter, 5 years old, slow and bashful. Next comes IV, 13, b. 1850, an industrious, ingenious man of irascible temper and considerable mechanical ability, though with little ambition. Always poor, he had 8 children by three women, and died in 1901 of pneumonia. He first married his cousin, IV, 14, an indolent, indigent harlot, who died 1887, of uterine hemorrhage. She belongs to a large fraternity of Line E, of whom the majority are slow, unindustrious and licentious, although there are striking exceptions. Of their four children the first is slow, deficient in causation, illiterate; lives in poverty and squalor, taking in washing for a living. She married, but soon left him to marry her cousin, V, 27, a feebleminded, licentious drunkard, of a licentious strain. She has 3 miscarriages and three sons (b. 1885 and 1890) all unambitious, alcoholic and licentious, and all living in poverty at I. The next child is V, 29. He gets industry, ingenuousness and mechanical ability from his father's side (or both sides) of the house. His marital relations are complicated. He married his cousin, V, 30, (as described) to legitimatize her feebleminded daughter; then left her and married V, 31 by whom he had 4 children (VI, 18-21); then abandoned her, went to the western part of the state and there cohabited with his stepmother, V, 32 and had an illegitimate child by her in 1911. His principal wife, (V, 31), was active, busy, orderly, neat, good-natured, neither loquacious nor taciturn, but a harlot. Besides V, 29, she has lived with VI, 303, and has had an illegitimate child besides; is now tubercular; lives in New York. Of their four children, 3 died in infancy of alimentary diseases. The 13 year old son is doing fair work in school, is taciturn and unambitious. His sex instincts have not yet broken into flame. V, 33 has also mechanical ability but lack of training. He is quiet, shy, taciturn and licentious; works on a farm in B——. V, 35 is industrious and fairly capable in housework. Married at 16 and had 8 children, of whom 5 died in infancy and two are feebleminded; the other is an infant.

Finally, IV, 15, is a steady but unambitious worker, a Civil War veteran, who was always poor, married a cousin, IV, 16, and died 1881,

of cancer of the stomach. She was slow, careless, indifferent, submissive, causationless, unambitious, without initiative, and alcoholic. She had 8 children (VI, 133-40) by IV, 15, and one by IV, 13, which latter was Nam-like, alcoholic and licentious. IV, 16 is still living in Nam Hollow on a widow's pension of $12 monthly, town aid, and basketmaking. Of the children, V, 45 died at 2 days and V, 46 at 3 weeks. V, 37, b. 1870, N. H., is slow, lazy, disorderly, alcoholic, entirely lacking in causation, licentious in youth, deaf. Does washing and basketmaking, and lives in squalor in a hovel. She married V, 36, a quick, industrious, dishonest, untruthful, alcoholic and licentious man who is careful in his work, but careless in other things. His fraternity carries a history of licentiousness. One of them, IV, 4, we have already become acquainted with as the consort of IV, 3. Of their 12 children, three died early (still-born), two are still young. Of the remaining seven, two boys are capable of learning and are, so far, chaste; two boys are Nam-like, alcoholic, licentious, feebleminded and one of them married his cousin in 1911; one boy of 10 years is an apathetic idiot, can neither talk nor walk, being ataxic. He has had several epileptic seizures since he was one year old, and needs institution care. The elder girl is a feebleminded Nam, has had an illegitimate child, and has since married the father. The younger girl, b. 1888 in N. H., is of special interest, for, when young, she was adopted and reared by a good family in B. She could not advance at school, and is lazy and shiftless, though chaste. When away in Vermont where she now lives, married though childless, she dresses neatly; but when in N. H. she reverts to old slack and slovenly ways; such is the influence of an improved environment.

VIII. RECORDS OF EPILEPSY.

The studies that have been made upon epilepsy indicate that there is usually, if not always, an hereditary weakness or tendency to the disease. The symptoms consist of a disturbance of movements and unconsciousness, of which the commonest forms are violent or slight loss of coordination in either general movements or special muscles. In psychic epilepsy there is merely a loss of consciousness usually lasting a few seconds.

The conditions besides convulsions and loss of consciousness which should be carefully noted are: insanity, in different forms, migraine, hysteria, chorea, fainting spells, alcoholism, syphilis and tuberculosis.

In inquiring as to inciting causes or incidental phenomena, ask about maturity at birth and the nature of the mother's labor; spasms in infancy; teething; injuries to head or spine; and about acute infectious fevers of childhood.

STUDY OF AN EPILEPTIC FAMILY (Fig. 12).

In a little wooden shack, on a mountain side in Northern New Jersey, with little furniture and that of the poorest sort, lived, some

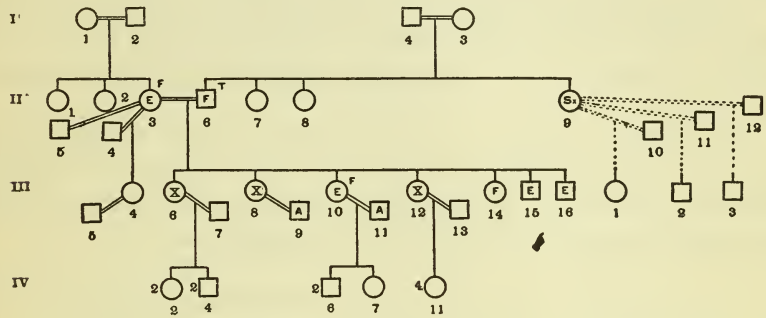

FIG. 12.

years ago, a man and his wife. The man, II, 6, who belonged to old Jersey stock, was shiftless and not infrequently lived for a time in the poorhouse. He was, moreover, a laudanum fiend and is said to have consumed it in large quantities; and he finally died of tuberculosis. One of his sisters, II, 9, was a harlot and had at least three illegitimate children who grew up. Nothing is known about his parents except that his father is said to have been "queer." His wife (II, 3), who still survives, is one of three children, of whom one died in youth, and the other is unknown. She, herself, is without industry or orderliness; clearly mentally defective. She is also an epileptic and has fainting spells which she feels coming on, then screams and faints away. This couple had seven children; concerning three there is little definite information. Of the four others the eldest, a girl, (III, 10, b. 1876), is feebleminded and epileptic. She married a lazy, shiftless, alcoholic fellow, III, 11, who has deserted his wife and three young children. The next girl, (III, 14, b. at L. 1870), about whom something is known is likewise feebleminded and, after living for a time in the poorhouse was "placed out," but where she is not even her mother knows. At least one of those with whom she was placed sent her back to the poorhouse. The elder boy, (III,15, b. at V, 1892), had

convulsions shortly before the age of puberty; was "placed out" for a time and has now found his way to a School for Feebleminded Children. The younger boy, b. 1894, began to have convulsions when six years old and he has now found his proper place at the Skillman Village for Epileptics.

IX. RECORDS OF THE INSANE.

Hospitals for the Insane are aware that their Family Histories are quite inadequate—or even false. Careful inquiries made of the families at home reveal an unexpected abundance of mental weakness and abberation.

The following "Guide to Analysis of Personality" has been drawn up by Dr. Amsden and by Dr. August Hoch, Director of the State Psychiatric Institute at Ward's Island, N. Y. It will be found useful by the field worker in pursuit of her investigations.

a. GUIDE TO ANALYSIS OF PERSONALITY:

DRS. GEO. S. AMSDEN AND AUGUST HOCH.

(1) INTELLECTUAL ABILITY

Ability to learn; how hard did patient have to work in school? Teachers' statements and school reports.
How capable in positions
Memory
Fund of information
Power of concentration
Power of observation

(2) OUTPUT OF ENERGY IN WORK AND PLAY

Lively, active, pushing
Sluggish, inactive, lazy
Talkative
Quiet

(3) HABITS OF ACTIVITY

Systematic, orderly, punctual, definiteness of purpose
Desultory
Demand for precision, consistency
Efficiency—how responsibility is carried
Practical or not

(4) MORAL STANDARDS

Truthfulness, honesty, conscientiousness, or tendency to shirk

(5) GENERAL CAST OF MOOD

Stable, variable
Superficial, deep
Cheerful, optimistic, sense of humor
Depressive, despondent, anxious, crying easily, moody, with samples of what kind of things caused worry.
Irritable temper
Indifferent, placid, phlegmatic

(6) ATTITUDE TOWARDS SELF

Conceit
Ability, or inability to see mistakes
Feeling different from others
Self-depreciation
Self-consciousness
Scruples

(7) ATTITUDE TOWARDS OTHERS

Sympathetic, kindhearted, affectionate
Generous
Selfish
How does he feel the world treats him?
Suspicious
Jealous
Sensitive—what about?
Resentful, forgiving —Topics
Irritability, temper —Topics
Forward
Bashful
What did other children think of him?
Liked or disliked by others

(8) REACTION TO ATTITUDE TOWARDS SELF AND OTHERS

Frankness —Does informant know patient's inner life?
Demonstrative
Tendency to unburden
Reticence
Tendency to seclusiveness
Brooding —Topics

Fault finding
Reaction to sensitiveness, jealousy and suspiciousness
Demand for sympathy
How are disappointments taken?

(9) SELF ASSERTION
How much effort does the patient habitually make to shape things or does he allow himself to be carried along?
Independent or dependent on opinion of others
Leader or led
How manage difficulties?
Ambitious
Plucky

(10) ADAPTABILITY
How obedient?
Ability to get along with other children (natural play), or with people in older years
Sociable
Did patient make friends, get readily acquainted?
Ability to take advice
Stubborn
Opinionated

(11) POSITION TOWARDS REALITY
Did patient take things as they are?
Phantastic
Day dreaming

(12) SEXUAL SPHERE
How much occupied with question
In awe of it, or afraid of it, or how was patient's attitude towards it?
Frank or especially secretive about it
Bashful in presence of other sex, or forward
Longings
Reaction to sexual desires
Prudishness

(13) BALANCING FACTORS
Religion, interests
How much satisfaction does patient get from what he does?
Ideals

TABLE OF FORMS OF INSANITY.

(The following terms should not be used to replace description.)

I Organic

(Accompanying syphilis)

1. General paralysis—paresis
2. Brain syphilis

(Accompanying alcohol)

3. Delirium tremens
4. Alcoholic dementia—chronic alcoholic psychoses

(Accompanying arterio-sclerosis)

5. Arteriosclerotic insanity
6. Dementia paralytica

(Accompanying the general deterioration of old age)

7. Senile dementia

II Functional

1. Manic-depressive insanity
   - hypermania
   - recurrent mania
   - melancholia
   - involutional psychoses
   - puerperal psychoses
2. Dementia praecox
3. Paranoid states (usually combined with 1 or 2)

Equivalents: Disturbed emotional states; e. g. excessive anger, fear, secretiveness, suspicion, jealousy, piety, hilarity, general irritability, obstinacy, cruelty, egotism.

Periodic mental disturbances: sick headaches (migraine), fugue, dipsomania (sprees).

Note if states are recurrent or progressive.

b. RECORD OF THE C—— FAMILY, WITH MUCH INSANITY (Fig. 13).

BY RUTH S. MOXCEY.

I. 1. James D. C——, born in M——, Oct. 10, 1804, died of insanity, Apr. 20, 1864. He was a conscientious man, inclined to be hyper-religious, but not so severely as to let religion interfere with

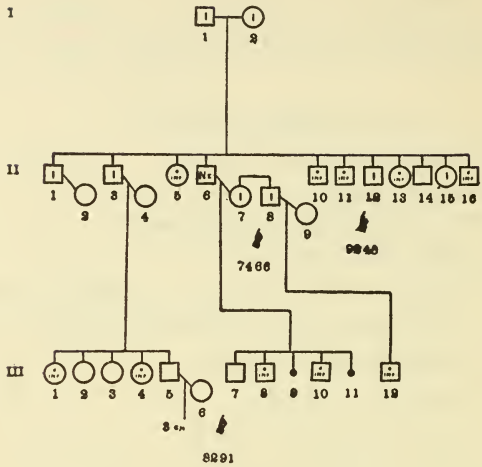

FIG. 13.

his activitiy and daily work. On Sundays his religious demonstration was so violent that the young people of M—— were said frequently to attend church from curiosity to see what he would do. "One time he burst the pew door open and sprang suddenly into the aisle; he was always making himself noticeable for the way in which he 'got religion.'" He was also a week-day curiosity, though no one has said why. By telling of some "graft" connected with the M—— poor-farm that had come to his knowledge, he incurred the anger of an overseer who was probably reaping some benefit from the graft. When the latter heard that James had exposed the affair publicly on M—— wharves where he often went fishing, he called at James' house and threatened him for having told. James was much agitated, and worried so much over the matter that he finally went to bed ill. He soon went violently insane, and died in the course of a week.

I. 2. On Nov. 29, 1827, he had married Susan R——, also born in M——. She was also insane upon religion. She had melancholia, and feared that she might not be good enough to go to Heaven when she died; she often cried and moaned over this. Mental trouble came on so gradually that some did not consider it as such until the last four or five years of her life; but all agree that she was unduly concerned about her life, and worried over little or nothing for a period of ten or twelve years before her death, on Jan. 1891 in M——. She had eleven children:

II. 1. James D. C——, b. Feb. 20, 1829, in M——, married Hannah T——, also of M——. There were no children. The wife is still living, but as she has had several paralytic shocks, she is unable to give any information. James D. is said to be a very rigid old-fashioned Baptist. Relatives say that he was subject to religious melancholia, similar to, tho less intense than, that of his mother. He was a shoemaker, but he sat and dreamed over his work. "He held a shoe in one hand, and in the other he held a Bible instead of the necessary hammer." He was never an active man, but was not as "gone on religion" as was his father. He died in the Salem Hospital, Apr. 27, 1904, of exhaustation—fracture of the thigh, said by relatives to have been caused by a fall when getting out of bed.

II. 3. John C——, b. Dec. 2, 1830, and d. May 10, 1893, of pneumonia and diarrhoea, at C——, Mass., where he had been a nurse in the Soldiers' Home. He had been temporarily insane at various times from the age of 50 and possibly earlier. Many never knew much of this trouble, for J. C. seemed to know when it was coming on, and just what to do for himself when in this condition. A change of place or occupation seemed to help him, and he took care to keep his hands and mind occupied as fully as possible. He also suffered from melancholia.

II. 4. Elizabeth D——, his wife, d. age 53-4, of pulmonary tuberculosis. They had five children:

III. 1. Lizzie, d. inf.

III. 2. Emily, d. Tb., May 18, 1786, age 18-10-13.*

III. 3. Etta (Marietta), unmar., d. April 14, 1889, age 29-7-14 of phthisis.

III. 4. Annie, d. inf.

III. 5. Leonard, married a Swedish woman, lives M——, has 3 children.

II. 5. Susan C——, b. 1832, d. 1839.

II. 6. Thomas R. C—— (father of No. 8291, and bro. of No. 9242) b. Aug. 23, 1834, in M——, d. Dec. 21, 1904, of pleurisy. Shoemaker by trade. His wife says that he was a nervous man, always very frail. He was taken ill with pluerisy one day and died the next at 4 P. M.

II. 7. Susan C—— his wife, and mother of case No. 8291, is living at No. 4 —— ——, M——. She is an irritable but kindly

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* Years—months—days.

woman; noted for her religious fickleness and zeal. She has been Baptist, Mormon, and has been in street parades with a tambourine for the Salvation Army. Her cautiousness is at times absurd. She did not tell the physicians in the hospital of a serious blow her son received on the head from a fall a short time previous to his being sent to the hospital, for fear that they might wish to "have some sort of an operation to see if that was what caused his mental trouble." She is at first suspicious, but can be won to give confidence, tho she worries afterward for fear she has said too much. She has friends whom she trusts implicitly, and her suspicious caution toward others whom she does not favor, seems never to be entertained towards friends. She takes "summer folk" to room with her at the beach, and she has for some years taken "fresh air" children, tho she has not done that recently as she is becoming too elderly to care for them. She has an eccentric habit of leaving her housework and walking the streets or visiting neighbors at meal time and taking the key with her so that her husband upon his return would find the house locked and no meals prepared. She says that her eyes will not allow her to work, but told of reading a novel until midnight. She had 3 children and two miscarriages:

III. 8. (No. 8291) Foster C——, b. Jan. 11, 1869, in M——. Admitted to hospital June 13, 1896, age 27, machinist, unmarried. Primary Dementia. "Confusion, disorientation, auditory hallucinations, hyper-religiosity, mutism, tendon reflex exaggerated, irritability, incoherence, psychomotor excitement, violent acts, motor restlessness, negativisim, masturbation, violent threats, stupor." Physicians certif: "Excited, dangerous, violent. Of late he has become more violent, and has escaped from home several times, causing disturbance in the street. While in bed, used profane language; said he had given up religion and gone to swearing." Note of May 22, 1911: "An exam. of chest at time of transfer to T. B. showed no signs; patient began to gain flesh and eat better immediately upon going out, and has continued to gain up to the present time, weighing now about 140 lb. Mental condition unchanged. Sits about with his head bowed, talking to himself. When questioned, answers in a quick, peculiar voice." He was working on a stationary engine, in connection with the laying of some street sewers in Feb., previous to his confinement in June. His work was in M——. One night he stayed overtime because the man who should have relieved him was intoxicated. He became very weary, and finally when he was relieved, he slipped on an icy side-walk,

striking his head so severely that he "saw stars" for some time; he was not certain that he was unconscious at all, and as soon as he got up, he started for his home in M——, some miles distant.

III. 8. George S—— C——, b. March 28, 1872; and d. July 25, 1872. M—— record gives cause: "Infantile."

III. 9. Miscarriage, 3 mo. "Went for a carriage ride, and came home sick."

III. 10. Frederick B—— C——, b. M——, Jan. 28, 1876; d. Feb. 4, 1877, of diphtheria.

III. 11. Miscarriage, 2 mo. from cleaning house.

II. 10. Joseph C——, b. Sept. 28, 1836; d. Sept. 26, 1837.

II. 11. Joseph C——, b. Oct. 19, 1838; d. Aug. 30, 1839.

II. 12. (No. 9242) Joseph C——, b. Aug. 8, 1841; admitted to hospital Oct. 19, 1898; shoemaker, unmarried. Diag.: Primary Dementia—Physical deformity (has a shoemaker's deformity of the lower end of the sternum.); dementia, disorientation, hernia, visual hallucinations, heredity, incoherence, mannerisms, sunstroke, suicidal acts, obscenity, motor restlessness, varicose veins, reflex changes, exaggerated. Physician's certificate: "Attempted suicide more than 25 years since. Said he did not feel well; does not drink much water; did not think the water in the well was fit to use in watering plants; sat still and talked; had used obscene and insulting language towards different individuals; wandered about the streets at night. No change in mental and physical condition in past 25 years." Patient is still in this hospital; used to work on the ward, but does nothing now. Talks to himself continually. Knows the name of the President of the U. S. and knows that hospital has a new superintendent this spring.

II. 13. Susan C——, b. Oct. 8, 1843; d. Nov. 16, 1844.

II. 14. Samuel R. C——, b. Oct. 8, 1846; d. Sept. 16, 1847.

II. 15. Mary Susan C—— (now Mrs. Philip C——, No. 33 —— ——, M——). She is decidedly a psychopathic personality. She has mannerisms, is very suspicious, untruthful, and in a minute forgets what she has told so that, by cross-questioning, one can obtain some things from her. As soon as some of her family come into the room she ceases telling what is incorrect, and when she sees that others are willing to talk, she sits as if she had been eager to be of service from the first, and begins to talk incessantly, but cautiously withholding facts. Have often met her in the streets in M——; she walks rapidly with her head down, and a sidewise glance from under her lowered brow is taking in everything, tho she apparently thinks no one knows

she is looking. She always endeavors to get past without salutation (and she seems to do this with all she meets on the street); but when spoken to, she looks up and responds in the same words, then hurries on head down. She did not marry until middle age. Her husband, an old soldier, a cripple, cooks in a good "sea-food" restaurant in M——.

II. 16. Edward D. C——, b. Apr. 11, 1840 and d. Sept. 4, 1849.

II. 8. (No. 746) Nicholas F. P——:

Susan C. P——, the mother of the patient (Case No. 8291), has also a brother in hospital (746, 228); age at last admit., 35; age at 2nd admit., 47; Apr. 11, 1882; assigned cause, intemperance, but no diagnosis appears. History at that time by sister: "Patient is of fair mental capacity; no religious belief; common school education; cheerful disposition and industrious habits; shoemaker; for two years has been a hard worker; one uncle died from brain softening; no history of hereditary insanity; is said to have enjoyed good physical health with the exception of partial sunstroke received some years ago. In June, the patient, after a long debauch, became very apprehensive; expressed delusions of persecution; said he heard people about his house, and refused to go out for fear of injury. After a week of absentation from drink, became better and returned to work. Began drinking and soon began to complain of headache and to exhibit delusions of fear. For six weeks has been actively deluded, imagining himself an object of persecution by the liquor sellers of the town. Has refused to go out of the house and has eaten and slept irregularly; no attempt at self-injury has been made. Thinks the rum sellers have put him down as a 'spotter.'" June 14, 1882, discharged as recovered. He was returned in March 22, 1894. Physician's certificate: "He has been insane for 15 years, and has lately become violent at times." Hospital rec.: "Alcohol, apprehensiveness, dementia, allopsychic delusion, exaltation, auditory hallucinations, indifference, incoherence, mannerisms, violent acts." Hospital: "Since note of March 26, 1905, the patient is reported continually as a tidy, useful person, well oriented, contented to stay here." He was married some time between the two commitments; his record says that he had been an inmate of the M—— almshouse for many years. His sister Susan says that one child was b. to him thru his marriage to Adeline S——:

III. 12. George, d. age 6-7 years in L——. The child as described was born with a tumor in his back, one joint of his spine was missing and this bunch was there in place of it.

The sister who gave the history of 2nd admit. said that "Father died of heart disease; mother died of spinal trouble."

c. HUNTINGTON'S CHOREA.

A form of chorea that leads to dementia. This disease well illustrates the method of inheritance of a *dominant* trait, since it never "skips a generation."

RECORD OF A CASE OF HUNTINGTON'S CHOREA (Fig. 14).

BY DR. E. B. MUNCEY.

Elizabeth P. I, 1 (5th generation from S. B. and R. F.) was born 1822 in C——, Onondaga County, N. Y. Married A. K. C., I, 2. They

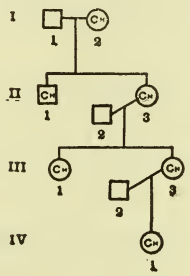

FIG. 14.

lived in V. B. New York for several years and later removed to G. She had chorea badly before death.

They had two children, II, 1, and P. C., II, 2, both suffered with chorea in a pronounced form. The history of Philo, II, 1, is not known.

P. C., II, 2, lived in M. where she married S. W., II, 3. They had two children.

E. W., III, 1, and her father lived in G. where she carried on dressmaking until her choreic movements became so pronounced that she was obliged to give it up. After this she became rapidly worse and died a few years ago (date uncertain) from exhaustation due to constant muscular movements. Her mind was seriously impaired. She died unmarried.

E. W. was affected earlier in life than her sister; onset between 25 and 30 years, soon after the birth of her baby. She married a man named M., and removed from G. Their daughter E. M. was choreic

from birth. As they left G. when she was a small child further history was unavailable.

X. RECORDS OF THE CRIMINALISTIC.

Studies already made suffice to indicate that in many crimes the act is a result of mental condition which is inherited. This is particularly true of crimes against chasity, drunkenness, incorrigibility, truancy, vagrancy, crimes against the person, arson, larceny, and malicious mischief of the grosser sorts. The study of the family history frequently enables a judgment to be drawn as to the relative importance of a bad environment and a bad nervous constitution in these cases. In criminal trials of the future it is certain that more consideration will be given to hereditary tendencies for whose possession the individual is clearly not responsible.

HISTORY OF A CRIMINALISTIC FAMILY IN NARRATIVE FORM.

DATA FURNISHED BY MRS. MARY DRANGA, KINDNESS OF DR. W. M. HEALY (Fig. 15).

A robust locomotive fireman now 68 years old who uses no alcohol or tobacco, and of whose antecedents nothing is known, married, many years ago, II, 2, a woman who was born in the mountains of West Virginia, near the Kentucky line. Though illiterate, this woman is physically well developed, fine looking, clean, and a hard worker. She has, however certain clear mental defects. She is subject to headaches on both sides of the head, accompanied with nausea, so that she must sometimes keep to her bed for a week. She has also fainting spells in which she shakes and falls down, sometimes bruising herself. Her eyeballs roll up, she can recall nothing about the spasm after it is over, but gets up, and goes to work, though with a sleepy feeling. She has 2 or 3 of these spells each week and has had them for a long time. She uses tobacco and alcohol in considerable amount and has the reputation of using morphine. Her temper is at times violent and she has been brought to court for abusing her daughter Ella. She steals from houses where she works. Finally, she was a harlot before her marriage while in West Virginia, and since her marriage cannot keep away from men. She has had 10 children by her husband; the biography of some of them has been ascertained.

III. 1. This son killed two men in W. of whom one was a policeman. His sister Ella informed on him, but he got off with slight penalty. Ella has been obliged to avoid her brother since.

III, 4 is the next daughter. She lives in West Virginia, has been married twice and has three children. While living with her second husband she had a paramour. In collusion with her, he shot her husband in the head, killing him, and she now lives with this murderer, whom she freed from the law by false witnesses.

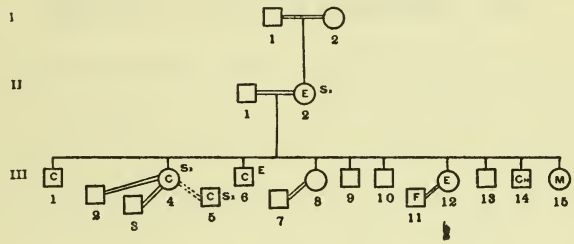

FIG. 15.

III, 6 is a man of 21 years. He is sickly, and, like his mother, an inveterate user if tobacco, and liable to fainting spells which are doubtless epileptic in nature.

III, 8 is a woman of good reputation, has been married 8 years, is childless, lives in Virginia.

III, 9, 10 are two sons of whom nothing is known.

III, 12 is a young woman not quite 17 years old. She was born in West Virginia but since the age of 11 has lived in Iowa. Her general physical condition is good, she has regular features and a pleasant square face. She was at school for 6 years and left in the fifth grade, but her slow progress is to be explained in part by interruptions. There is clear evidence of serious nervous trouble. She has always been nervous and afraid in her sleep. When 15 years old she had an hysterical attack, following a slight scare, and, in consequence spent a month in a hospital. A little later she married III, 11, giving her age as 18 instead of 16. After living with her husband for two months he sent her to Chicago. She has had two spasms since her marriage. Letters from her home stated that her husband sent her away because he found her with a man.

III, 11 is unable to write his name or to figure. He works in the round house of the railroad, where he was once shot at. His mother lives with a man to whom she is not married.

III, 13 is a son, nothing known about him.

III, 14 is a son who died at 13 years. Had St. Vitus' dance and heart trouble.

III, 15, 13 years old. Has bad headaches with nausea, so that she has to go to bed for a day or two.

XI. RECORDS OF SEX OFFENSE.

The problem of prostitution in our cities cannot be solved by visiting brothels and making inquiries of the inmates, on the assumption that they are quite like other people excepting that they are the victims of an unfortunate environment. It is necessary to make a psychological analysis of the prostitute's fraternity and that of her father and mother. It appears at once that her traits were born with her—are in her blood.

The following is a schedule of inquiries that should, at the discretion of the field worker, be made.

PERSONAL HISTORY

Date of birth
Place of birth
Nature of early surroundings: urban, rural, etc.
Care by mother, by sisters, by brothers, by servants.

ECONOMIC HISTORY

SEXUAL HISTORY

First sex feelings; age, nature
Growth of sex knowledge
Masturbation, if any; history.
Onset of menstruation; age, symptoms
History of relations with men; with conditions leading to them and details that throw light on the psychical condition of each of the pair.

PHYSICAL TRAITS

Present height
Present weight
General facial appearance, as to beauty and intelligence.
Eye color
Hair color
General mental ability — Binet test
Appreciation of cause and effect
Appreciation of consequences of sex act
Foresight
Attitude toward social infamy
Love of amusement and excitement
Vivacity
Love of display
Vanity; desire to be noticed
Curiosity

Appetites for alcohol; for narcotics
Industry or idleness
Modesty—sensitiveness to exposure unclad
Self respect

SEX IMPULSE

Tendency to fall in love
Strength of desire
Indulgence in erotic imagination
Strength of inhibitions
Desire for exclusive and permanent possession

DEGREE OF PLEASURE DERIVED THROUGH SENSE OF:

Touch, particularly of persons. Taste (Idiosyncrasies of). Color. Music. Smell (personal odors; perfumes)

APPRECIATION OF IDEAS OF:

Sex-immorality, virtue, purity, chastity
Self control
Public opinion
Truth, honesty, kindness (to children and animals)
Trustworthiness and reliability

LIABILITY TO OTHER ANTI-SOCIAL ACTS

FAMILY HISTORY OF AN INMATE OF A GIRLS' HOME (Fig. 16).

BY WINIFRED HATHAWAY.

The Patient, IV, 1, b. Nov. —, 1893, East Boston, Mass. Parents American, Protestant, early environment unfavorable. Father: feeble-minded, immoral, alcoholic, abusive to the children; mother: young, very immoral, worked part time in a store and left the children alone all day. Home poor and neglected, in a bad section of the city. Patient born at full term when mother was less then 15 years old. From childhood she would do anything to attract attention to herself. For instance, when "Jack the Snipper" was cutting the hair of girls in the streets, the patient caused a sensation by cutting off her own hair. She hid it, invented a thrilling story of her encounter with the vandal, was delighted when brought to court, and confessed only when confronted with hair which had been found. She was fairly good at school, reached the eighth grade, but never cared for study. She was untrustworthy, wilful, quick-tempered, crazy over boys; admits she began to have immoral relations at 9 years of age and cannot recall that she ever had any sense of modesty. When she was about 14 years old, her mother left her husband, took the children with her and moved to a house near the Charleston Navy Yard. The

patient visited the yard with a companion and, subsequently, under pretence of going to school or to church, she frequently went to the Yard. She represented herself as an officer's daughter, and seems to have had free access to the place at any hour of the day. The companion spoken of above also introduced her to a house of ill-fame. The patient thus described her Sundays: Directly after breakfast she took her Bible and ostensibly started for Sundayschool. Really

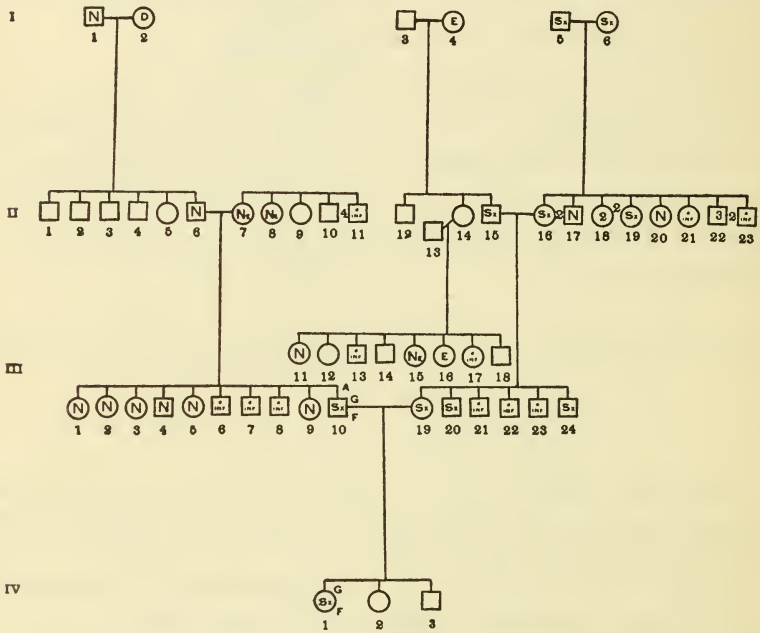

FIG. 16.

she went to the Navy Yard, then returned for dinner, went out again, ostensibly for a walk, but really to a house of ill-fame, remained until late in the afternoon, returned for supper, and sometimes went in the evening to the Navy Yard or to a house of ill fame. Her account of her sexual life may be exaggerated to add to the sensation; but she declares that she had immoral relations with at least 150 marines at the Navy Yard and visited four houses of ill-fame in Boston; she received money but there is no evidence that a desire for it had any important influence in leading her to these places or causing her to continue to frequent them. If left a moment to herself she practices masturbation; she says she cannot keep away from men and that she feels at times that she must go to the Navy Yard.

Her offenses soon became so flagrant that Society began to take notice. In a department store where she worked, she flirted so that three men lost their positions through her and she was discharged. She took a young girl to the Navy Yard where they had immoral relations with marines; the friend was frightened and told someone in authority so that the marines were arrested and sentenced to 2½ years, while the patient herself was put under the care of the Children's Aid Society; was "placed out" by the society into a good family, but her libidinous instincts soon ended this relation. Then her mother had her committed to an institution for wayward girls, 1909, at the age of 16 years. She was placed on parole two years later with a family in D——; here she met two men; was of no use in the household and was returned. Was placed in W—— but was unable to do anything without assistance; placed out in H—— but ran away and was returned to the Institution where she now is.

At present the patient is a goodlooking girl, 5′ ¼″ tall; weight 122 lbs; has thick, dark wavy hair, (some hairs gray); dark eyes, very full and large and with glasses. Hands thick and voice low and pleasantly modulated. Never noisy, but listless and sentimental with a dreamy superior air very irritating to the other girls. Indolent, always with an excuse to offer against work; smooth, cunning and an inveterate liar. She has gonorrhea and has deteriorated mentally. The Binet test gives 11.4 years. Definitions poor, could not put dissected sentences together, repeat figures or sentences or give rhymes; can do no abstract work or manual work without supervision. She has been diagnosed as deficient in any moral sense, incapable of acquiring it and requiring permanent custodial care.

PATIENT'S FRATERNITY.

Sister, IV, 2, b. 1894, East Boston, Mass. A small, slender girl with brown hair and eyes, rather coarse features, sallow complexion, very bad teeth, forward, incapable, extremely nervous and hysterical. Graduated from the Grammar School and has been attending evening High School this winter. Worked for a time at W's department store, but lost her position for laughing and talking too much; is at present working at H's department store. So far as known she is a moral girl.

Brother, IV, 3, b. 1898, East Boston, Mass. A very small boy for his age; light-brown hair, small blue eyes, small oval face, head rather pointed, ears protruding, has suffered much from abcesses in his neck. Mentality very good. Graduated from the grammar school

and is attending the Mechanic's Art School. Does a great deal of the housework, cooks, scrubs, and is altogether very capable. At present is running errands for a dressmaker after school and on Saturdays. He is emotional, cries very easily, is highstrung and nervous.

PATIENT'S FATHER.

III. 10. B. 1868, East Boston, Mass. A slender man of medium height, small head, protruding brown eyes; has a sullen expression; and is sullen and moody in his reactions. It is reported that he had a fall when a child and has been considered half-foolish since. Intoxicants make him almost insane; and, it is said, he has had delirium tremens; he is often called "Crazy C"; and has never amounted to anything. He boarded with a Mrs. A. and there met her daughter, the patient's mother, who was not quite 14; she became pregnant by him, and he was obliged to marry her. He soon began to drink heavily, quarreled with and abused the members of his family, failed to support them, and was several times arrested for non-support; has to pay $4.50 per week toward the support of his children. He was a teamster; helped for a time as school janitor and worked about wharves. Is working at present for a Boston firm.

FATHER'S FRATERNITY.

III. 1. East Boston, a short, very stout woman of excellent repute and average mental ability; married a fireman of good repute. They live in a good, clean tenement in a fair location. Formerly wished to bring up the patient, but her mother refused.

III. 2. B. 1860, East Boston, a short, plump woman of excellent repute and good mentality. Married W. N., a police officer of high rank; live in a clean, comfortable frame house. Have two children, E. N. and E. F. N., of good reputation, the latter of whom is married and has a somewhat backward two year old child.

III. 3. A small woman of good repute and mentality; has two children who are well spoken of.

III. 4. B. 1861, East Boston, a very stout man, brown hair and eyes, features large, nose broad, bridge broken. Is janitor of School ——; has held position 20 years, is considered efficient, and is of good repute.

III. 5. B. ——, of good repute.

III. 6. B. 1863, East Boston, d. 1868, membraneous croup.

III. 7. B. 1865, East Boston, d. 1869, infant wasting.

III. 8. B. 1867, East Boston, d. 1869, infant wasting.

III. 9. B. 1872, East Boston, a short, plump woman, brown eyes, and hair, broad face small features, bad teeth, mentally good and of good reputation.

PATIENT'S FATHER'S FATHER AND HIS FRATERNITY.

II. 6. B. 1836, East Boston, Mass. A very stout man only 4 feet tall, of excellent repute, a school janitor for 40 years. Suffered from cataracts and bladder trouble, operated at hospital on eyes, and died 1912.

II. 1. B. about 1832, East Boston, was a ship rigger, fell from rigging and was killed 1860.

II. 2. B. 1834, East Boston, of good repute, married, several children, d. 1904 of complication of diseases.

II. 3. B. 1838, East Boston, Mass. A tall, well-built man. Gray hair and beard, blue eyes; keen kindly face; of excellent character, married, five children.

II. 4. B. 1841, East Boston, Mass.; moved to California; when young died by suicide.

II. 5. Girl, unknown.

PATIENT'S FATHER'S FATHER'S FATHER AND MOTHER.

I. 1. B. 1808, Boston, Mass. Was ship rigger by trade, had sent son into rigging when latter fell to his death. Father never recovered from shock. His wife, I, 2, b. 1821, is reported to have been of excellent character, kept her faculties, except hearing, until her death.

PATIENT'S FATHER'S MOTHER AND HER FRATERNITY.

II. 7. B. 1838 Hingham, Mass. A large-framed fleshy woman, hair black, eyes brown, prominent, face and features large, good mentality and reputation; rather hard and bitter.

II. 8. B. 1836, Hingham, Mass. Was of good repute, milliner by trade, suffered a long time from kidney trouble, became quite *childish* before her death.

II. 9. B. about 1840, d. 1882 of cancer in the side.

II. 10. B. about 1842, d. 1886, Bright's disease.

II. 11. Four children, d. in infancy.

PATIENT'S MOTHER.

III. 19. B. 1878, Nova Scotia. A short, plump exceedingly pretty woman, prematurely gray hair, large blue eyes, with a trick of looking very child-like and innocent that is apt to lead one astray. Round face, plump cheeks, good complexion, large nose, full mouth, pleasant voice and manners, average intelligence, a great talker, but wholly superficial. Very emotional and hysterical; rather fond of weeping, a hard-working woman; a sales-woman at a large department store doing house-work, washing, cooking, and sewing evenings and Sundays. Is very neat in her personal appearance, cannot bear to have the children wear store-made things, and the fact that the patient had on prison-made shoes at the Home seemed to hurt her more than all the immorality. The small tenement where she lives is fairly clean, the home always quiet; she represents herself to be a widow. She is reported always to have been a sensual girl, attracted the attention of men wherever she went. Her mother kept a boarding house in East Boston, and the girl was around the boarders a great deal. When she was 13 years old her mother went to Nova Scotia, leaving her at the boarding house. She is reported to have been very intimate with the boarders and when her mother returned she was found to be pregnant. She declared at first that her father was responsible for the child, but admitted that she had relations with III, 10, and asserted that he was the father; finally he married her, before the patient was born. As the children grew up they ran the streets; each parent reproached the other for immorality and though III, 19 pretended to be shocked at the patient's life, it in part reflected her own. Since her separation from her husband, she has received a man by the name of J—— who stays all night. She is said to have bragged about him among the shop girls as her "conquest."

PATIENT'S MOTHER'S FRATERNITY.

III. 20. A very large strong man, who is a teamster. Has been very immoral but seems to have settled down with his wife (A B) whom he was forced to marry. They live with his mother in a good, clean tenement, and have four children.

III. 21, 22. Two boys died at about 2 years of age of diphtheria.

III. 23. Boy, died infancy of cholera infantum.

III. 24. B. 1886, East Boston, Mass. A large, very healthy man, of good mentality, considered the best in the family; but his marriage said to have been a "forced" one. He has two young children.

PATIENT'S MOTHER'S FATHER.

II. 15. B. 1856, Nova Scotia. A very small man, weighing 76 lbs. Has always been very hardworking and much brow-beaten, and never a very successful man. He did night work in a sugar refinery for 30 years, never getting more than $10 a week. He watched the vats and had to keep in a bending position most of the time and to this position and tobacco are ascribed the cancer of the buccal cavity from which he suffers. He had an operation in which the growth was removed but there is no hope of recovery; meanwhile the company continues his salary. It is reported that his wife treated him cruelly, making him do the family washing when he returned from the night's work, striking him on the head and abraiding the skin with a rolling pin, providing him with insufficient food. His marrage was forced for his wife was pregnant by him before her marriage.

HIS FRATERNITY.

II. 12. B. 1850, Nova Scotia, said to be living in Laurence Valley, N. Y.; married.

II. 14. B. 1851, Nova Scotia. A short, rather stout woman. Has brown eyes and hair, wrinkled skin, no teeth, and most peculiar traits. She is very blunt and outspoken; nervous, excitable and subject to fits of nervous hysterics, when she will cry for days at a time. Is considered mentally lacking by the neighbors; became so peculiar after the menopause that the family feared insanity; is said to have a violent temper. She looks ill and wild and appears almost foolish at times. Has a horror of seeing people; will not open the door. Three visits of the field worker were unsuccessful but on the fourth she was admitted and treated kindly. II, 14 said she had seen the field worker each time, and finally decided it must be something important; the information asked for was given willingly and in a clear concise manner. She married II, 13, b. about 1858, in Nova Scotia, a large very kind man with gray hair and moustache, blue eyes with a cataract, very large nose and the appearance of general moral and mental normality. They have 8 children, III, 11-18.

III. 11. B. 1871, of good repute, married to E. C., a daughter b. 1907, Somerville, Mass.

III. 12. B. 1875. A very short, slender woman, dark-brown hair and eyes, a small thin face. Has tuberculosis of the throat, but has improved in a sanitarium. Is nervous and high strung, but has good control of herself. Married N. B., a Jew, much against her

parents' wishes. They live in a good clean apartment. She is a dressmaker, of average intelligence and good repute.

III. 13. B. 1877, G——, d. 1879, measles and lung disease.

III. 14. B. 1879, G——, d. 1884, fell from wharf and was drowned.

III. 15. B. 1884, G——, a very small excitable woman; cries for days at a time. Is now in a sanitarium for *nervous diseases.* Married T. J. a drummer. They have a comfortable home in L.

III. 16. B. 1886, in the town of G——. A small slight, quick, active woman with brown eyes and hair, small face and features. Has always suffered from epileptic fits; but these do not seem to have affected her mentally. It is said she had 14 attacks the day her child was born. She married E. K., twice her age, a tall slight man with very gray hair, gray eyes, thin face, sharp features, who looks ill. They live in a well-kept tenement in a good section.

III. 16. B. 1886, small, slight woman; brown eyes and hair. Epileptic. Quick and active.

III. 17. B. 1890, d. 1892, food did not agree with her.

III. 18. B. 1894, a very large boy about 6 feet tall, weight 197 lbs. Brown eyes and hair. Full, round face, large features, average mentality; electrician, was mixed in an assault on a young girl, but was acquitted.

PATIENT'S MOTHER'S FATHER'S FATHER AND MOTHER.

I. 3. B. 1822, Nova Scotia, drowned at sea, 1882. Married I, 4, b. 1824 Nova Scotia; was subject to epileptic fits, which often succeeded each other rapidly. Was of good repute and preserved her mentality till her death at 80 years of cancer of the stomach.

PATIENT'S MOTHER'S MOTHER AND HER FRATERNITY.

II. 16. B. 1858 Nova Scotia. A tall, heavy woman with light hair, blue eyes, and large face with very hard expression. Dressed very well and lives in a good tenement; is reported to have been sensual and immoral like her daughter and granddaughter (whom she bitterly denounces) and to have been most cruel to her husband.

II. 17. Two males said to have been normal, respectable.

II. 18. Two females of whom little is known.

II. 19. Two females immoral, and one of these feebleminded.

II. 20. Female said to be of good repute.

II. 21. Female died in infancy.
II. 22. Three males of whom nothing is known.
II. 23. Two males died in infancy.

PATIENT'S MOTHER'S MOTHER'S FATHER.

I. 5. B. 1822, Nova Scotia. A man of very bad repute, grossly immoral; is living in Nova Scotia. Has 3 children.

PATIENT'S MOTHER'S MOTHER'S MOTHER.

I. 6. B. 1827, N. S. A woman of bad repute. Is reported to have kept a notorious house in Liverpool, N. S. Her husband was so immoral that she left him and came to Boston. Here she was a nurse for many years and seems to have had a very good reputation for morality. She is described as having been lightheaded, very imaginative, and not always quite responsible.

XII. THE STUDY OF HUMAN HEREDITY*.

Methods of Collecting, Charting and Analyzing Data.

BY DAVENPORT, GODDARD, JOHNSTONE, LAUGHLIN, WEEKS.

The following methods are in use at the Eugenics Record Office at Cold Spring Habor, Long Island, The New Jersey State Village for Epileptics, at Skillman, and The Training School for Backward and Feeble-Minded Children, at Vineland, New Jersey.

1. THE FIELD WORKER.

For many years the better organized Hospitals and Institutions for defectives have kept family histories of the patients. The information obtained from application blanks, physicians' examinations and replies received from letters sent to relatives and physicians have been compiled and tabulated and deductions have been drawn from them. But it has for some time been apparent that such family histories are far from satisfactory and that a better way to get at the method of inheritance of epilepsy, feeble-mindedness and the various forms of insanity and criminality is by means of a field worker, who goes to the homes and interviews persons that can and will give the desired information.

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* Reprinted from Eugenics Record Office: Bulletin No. 2.

Besides the research work, the field worker performs many of the services that usually fall under the head of purely social worker. In many cases patients who have not heard from friends or relatives in years are brightened by the visit of the field worker and look forward to her return in the hope that she may bring them news of their friends. Discharged patients are visited by the field worker whenever possible in order to keep the Institution in touch with them. Her visits to relatives, physicians and others establish a friendly feeling toward, and an intelligent understanding of, the Institution and its work.

When connected with an Institution, the field worker (who for the purposes of many studies is preferably a woman) first learns all she can about the patient from the material at the office, such as correspondence, application blanks, records of medical and psychological examinations. Addresses of friends and relatives and other information that may be helpful in locating them is recorded and put in form for the worker to take with her. Just before starting out to visit the relatives and friends, the field worker visits the patient in his ward or cottage. This is done in the manner of a friendly visit. She learns from the patient all that he or she can tell about the friends and relatives, especially with reference to their addresses, etc. The patients enjoy these visits, and are often able to give very useful information.

Everything now being ready for the visit to the home, the field worker, armed with recent personal knowledge of the patient, which assures her cordial welcome, visits the home and interviews the relatives, friends and family physician. To secure satisfactory results, sympathetic and confidential relations must always be maintained. It is better to leave some details to another visit than to have relations at all strained. The field worker's constant endeavor must be to establish a feeling between the family and Institution that will assure her of a welcome at any time with kindly cooperation, and to this end she sacrifices minor details that would naturally come on return visits. The field worker endeavors to see as many relatives as possible. In this way facts omitted or overlooked by one are often recalled and told in full detail by another, and by this means information already obtained is confirmed. Every additional interview is sure to reveal new facts.

Addresses of relatives who live in other sections are recorded to be used later by an investigator in that section. References to foreign countries are also kept, with the town, and wherever possible, the street address. In the case of foreign born parents, an endeavor is

made to obtain data relative to the time of immigration, the town from which they came, and other information that may be useful.

Whenever the field worker learns of any defectives who need Institutional care, their names and addresses are obtained, and filed with the other material. By this means useful information is available when application is made for admission to Institutions.

As collected, the data are carefully recorded, and the pedigree chart made of the family. This is then put in permanent form on a sheet of white paper 8 x 10½ inches, with such notes and symbols as have been adopted to designate certain traits. A full description, with all details, is typewritten and filed with the chart.

2. THE CHART (Plate I).

The plan of charting adopted is based on the decisions of a committee of the American Association for the Study of the Feeble-Minded held at Lincoln, Illinois, in 1910. This committee consisted of Supt. E. R. Johnstone and Dr. H. H. Goddard, of Vineland, N. J.; and Drs. A. C. Rogers, of Faribault, Minn., Wm. Healy of Chicago, Ill., Wm. T. Shanahan of Sonyea, N. Y., and David F. Weeks of Skillman, N. J.

The system is a rectangular one, the symbols for the individuals *(individual symbols)* of a fraternity (full brothers and sisters) being on the same horizontal line, with each later generation placed below the next earlier. Male individuals are indicated by squares, females by circles, suspended by vertical lines *(individual lines)* from the horizontal line. Members of one fraternity are connected by the same horizontal line. The rank of birth in the fraternity is indicated by a serial number placed immediately above the *fraternity line.* When the sex is unknown the square or circle is omitted from the end of the individual line. The fraternity line is connected by a vertical line *(descent line)* to a line joining the symbols of father and mother *(mating line).* The mating line may be a short horizontal one or oblique, passing from one consort to the other as emergencies of space decide. Dotted mating lines are used for illegal unions. When a marriage of one of the individuals of a fraternity who occupies a middle position in the series is to be represented, the consort is placed below and to the right or left of the circle or square and joined to it by an oblique line from which is dropped a *descent line* meeting the fraternity line. In the case of illegitimate children, the descent line is dotted.

For purposes of reference from description to chart each sheet of a pedigree is numbered serially with Arabic numerals. On each sheet the generations are numbered serially at the left margin with Roman numerals (I, II, III, etc.) beginning with the oldest generation. In each generation each individual symbol is numbered with Arabic numerals from left to right. In the text reference is made to an individual on the chart by sheet, generation and individual number. Thus 1, II, 17 means the first sheet, II generation, 17th individual symbol from the left. For the sake of uniformity in charting the families, the paternal side of the family is placed at the left of the chart, the maternal side at the right.

(For display charts. As a matter of convenience and as an aid in tracing the patient's immediate family, showing at a glance the lines of paternal and maternal descent of the defect, the descent line connecting the paternal side may be made green. Red may be used for the lines connecting the individuals on the maternal side. That the patient's symbol may stand out more prominently and make the reading of the chart easier, the fraternity to which he or she belongs may be dropped below the others.)

Besides the lines and individual symbols a nomenclature is used that gives in brief much information for the interpretation of the chart. The following capital letters are used inside or around the individual symbols as follows:

A alcoholic, decidedly intemperate,
B blind,
C criminalistic,
D deaf,
E epileptic,
F feeble-minded,
G gonorrheal,
I insane,
M migrainous,
N normal,
Ne neurotic,
P paralytic,
S syphilitic,
Sx sexually immoral,
T tubercular,
W vagrant (tramp, confirmed runaway).

An index hand points to the individual whose heredity is being studied.

A line under a symbol indicates that this individual is or has been an inmate of some Institution.

A small black disc at the end of an individual line indicates a still-birth or miscarriage.

When the individual is the subject of several defects or diseases, the additional letters are arranged around the individual symbol. Symbols for traits that are not designated above are written beneath the individual symbol. When no letter accompanies the individual symbol it means that no definite data had been secured at the time the chart was made. The trait—alcoholism, criminality, deafness, epilepsy, feeble-mindedness, insanity, etc.—which the field worker is chiefly studying may be called the primary trait for the chart or pedigree. An individual showing the primary trait is represented by a solid symbol, printed (if desired) in color with the corresponding letter intaglio.[1] These symbols are shown in full size in plate V.

In studies on insanity it is suggested that qualifying lower case letters, used singly or in combination, should, whenever possible, be added to the letter I, e. g.:

a alcoholic insanity,
d dementia præcox,
g general paralysis of the insane,
m manic depressive insanity,
p paranoia,
s senile dementia,
t traumatic insanity.

On the pedigree chart, b stands for born; m, for married; † or d, for dead or died; † (or d) inf. means died at or before two years of age; † (d) young, means died before the age when the trait normally develops or is detectable; e. g., with feeble-mindedness before six years; with epilepsy before fourteen; with insanity before twenty.

In case other traits or causes of death are given on the chart they may be abbreviated as follows:

bd Bright's disease,
ca cancer,
cb childbirth,
ch chorea,
cr cripple,
df deformed,
dp dementia præcox,
dt delirium tremens,
dy dropsy,
ec eccentricity,
en encephalitis,
go goitre,
gp general paralysis of the insane,
hy hysteria,
id ill defined organic disease,
kd kidney disease,
la locomotor ataxia,

[1] Red is being used for epilepsy, green for insanity, violet for criminality, black for feeble-mindedness. When the individual does not show the primary trait or associated secondary trait he is marked "N," but this does not necessarily mean that he is normal in all respects.

md manic depressive insanity,
np neuropathic condition,
obs obesity,
pa paranoia,
pn pneumonia,
sh shiftlessness,
sm simple meningitis,
sb softening of the brain,
sco scoliosis,
sd senile dementia,
su suicide,
va varices, varicose veins,
ve vertigo,
x unknown,
? implies doubt.

When preceded by a † (or d) the term indicates the cause of death.

In making the charts rubber stamps may be used to advantage. Standard sizes of these may be obtained from Lewis F. Walton, 12 South Fourth Street, Philadelphia. Other lettering may be done with a typewriter. (Plates III, IV.)

3. THE DESCRIPTION.

The full description of an individual, as herein contemplated, comprises the following thirteen points. It is obtained for each person in the family so far as practicable.

1. Name (maiden name of all married women; method of spelling surname preferred by the family to be ascertained and used. First time field worker uses a surname in her report it is to be written in Gothic capital letters, e. g., **DE BOW**).

2. Sex, if not sufficiently indicated by name (Frances, Francis; Jessie, Jesse; Marion, Marian; etc., frequently confused).

3. Date of birth. (This gives order of birth, age at time of interview, age at death, if dead, etc. Should be accurate to the month. Useful for reference to town and vital records.)

4. Place of birth. (Tells at least where mother was at given date and probably locates entire family; frequently assists in helping to connect with related families in same general locality; locates town where birth records may be sought.)

5. If dead, date of death or age at death approximatey. (Essential in getting proportions of affected among those who reach the *age of incidence.)*

6. Cause of death. (Get the best diagnosis possible, inquiring of family physician where practicable and learn if any autopsy was performed. So far as possible use the terms employed in "Causes of Sickness and Death," United States Census Bureau, 1910. Field workers should study this list. Note directions given in paragraph

below entitled "Description of Traits and Causes of Sickness and Death.")

7. Place of death. (Useful in comparison with town and vital records.)

8. If immigrant, date of immigration (steamship and port of entry where possible).

9. Mental and physical condition of each person. (Note paragraph, "Description of Traits and Causes of Sickness and Death.")

10. If married, a description with full name of consort, or of consorts, if married more than once; of the children, and of the consort's parents.

11. Occupations, whenever possible.

12. A general description of the home influences, environment and education.

13. For each family, the sources of information. (Names, addresses and relationships of the individual who is being primarily studied.)

Description of Traits and Causes of Sickness and Death. The field worker naturally directs inquiries primarily toward the specific trait that is being studied (herein called *primary* trait). But the opportunity is utilized to learn of other traits that may be significantly or incidentally associated with the primary trait. In describing traits, the person interviewed is encouraged to talk freely while the field worker records the essential points in the description. In the case of the primary traits too much detail can hardly be obtained, and even in the associated traits she is not to be satisfied with vague terms if details can be obtained. N. B. Experience indicate that it is not desirable for the field worker to use a printed form in her interviews.

Such vague terms, to be used only when further details cannot be obtained are: *abscess,* without cause or location; *accident; decline,* without naming disease; *cancer,* without specifying organ first affected; *congestion,* without naming organ affected; *convulsions,* without details and period of life; *fever; heart trouble* and *heart failure; insanity,* without details (when possible distinguish alcoholic psychoses, progressive or general paralysis, senile dementia, softening of the brain, on the one hand, and such forms as manic-depressive insanity, melancholia, paranoia, dementia præcox, on the other); *kidney trouble; lung trouble; marasmus; stomach trouble.* The following data are considered especially valuable as symptoms, and should at the judgment of the field worker be made the subject of inquiry: alcoholism,

venereal disease (including gonorrhea and syphilis), sexual immorality, masturbation, St. Vitus' dance or chorea, and sick headaches.

The term "normal" should be used only to indicate that, in respect to the *primary trait,* the individual is believed on trustworthy evidence to be like most people. Normal is not to be applied to persons simply because nothing is known to the contrary.

Limits to Pedigree. How far among collaterals is it desirable to extend the pedigree? This depends on the nature of the primary trait. If, as in the case of most defects, it is due to the absence of a quality essential to normal development then it will be desirable to learn at least of the direct ancestors as far back as possible; the fraternities to which the parents belong; the offspring of all members of such fraternities and the parents of each consort when there are children. Likewise, each of the members of the four grand parental fraternities, their consorts and their children, their children's consorts and the children's children. If the patient has brothers and sisters these together with the patient are studied with the greatest possible care; also their consorts and children, if any.

If the trait is one that never appears in the children unless one parent shows it, then it is desirable to carry back the direct line as far as possible and less attention need be paid to the descendants of certainly normal collaterals beyond what is necessary to establish with certainty the law of inheritance.

4. METHODS OF ANALYSIS.

A brief statement of the Mendelian rules of heredity. So many traits are inherited in accordance with the Mendelian rules that a brief statement of them is appended. But the field worker is warned against being so prejudiced by these rules that her, or his, judgment is warped. The exact facts are to be sought; their interpretation must come later. So far as possible all statements should be verified. In general a statement may be regarded as verified when made by a second, independent witness.

With this caution in mind the Mendelian rules will be found useful in directing the field worker in her inquiries. First, it is important to disabuse the mind of the popular error that traits are inherited from ancestors. Strictly, traits are not inherited at all; what is inherited is a condition of the reproductive or germ cells which determines the development of the trait—the trait depends on the presence or absence of a *determiner* in the germ cells.

Some defects that the field worker will study, such as albinism and feeble-mindedness, are known as recessive defects, i. e., they are defects due to the absence of the determiner making for normality in respect to these traits. Other defects, such as cataract and brachydactylism, are dominant defects, which means that they are due to the presence of some germinal determiner in addition to all the determiners for normality in respect to these characteristics. Thus, in respect to one character there are three gametic and two somatic types of individuals. Somatically, the individual has or has not the defect; these are the two somatic types. Gametically the germ plasm of the individual may possess alternately germ cells with and without the determiner studied; an individual carrying such a germ plasm is said to be *simplex* and somatically cannot be easily distinguished from a *duplex* individual in which every germ cell possesses the determiner in question. The third gametic type is said to be *nulliplex* in which none of the germ cells possess the determiner in question. There are thus six types of gametic matings in reference to a single character; these types may be expressed as follows:

Type 1. $(D + D) \times (D + D) = 4\,DD$
" 2. $(D + D) \times (D + R) = 2\,DD + 2\,DR$
" 3. $(D + D) \times (R + R) = 4\,DR$
" 4. $(D + R) \times (D + R) = DD + 2\,DR + RR$
" 5. $(D + D) \times (R + R) = 2\,DR + 2\,RR$
" 6. $(R + R) \times (R + R) = 4\,RR$

D stands for the determiner for the trait studied and R stands for its absence.

The field worker must understand that research, seeking to unravel the laws of inheritance must work out the gametic nature of each individual studied, hence the necessity of extending the pedigree to all ancestors with collaterals, descendants and consorts of all individuals the make-up of whose germ plasm it is desired to understand. For example, by hypothesis, feeble-mindedness is for the most part a recessive trait and the hypothesis must be tested as follows: The field worker finds a person suffering from feeble-mindedness, a descendant of two normal parents—by hypothesis both of these parents are *simplex;* the field worker must understand that each parent will probably have somewhere in his or her ancestry a feeble-minded person and it is the business of the field worker to make a special search for such person or persons in the pedigree.

Criticism of an actual pedigree reported by a field worker. (Plate II.) This study begins with the epileptic boy III—7. The principal thing, of course, is to describe accurately all of the brothers and sisters of the affected person, they, being produced by the union of the same two germ plasms, will throw light on the make-up of such germ plasm. The pedigree is to be criticised from this standpoint. More information should be got concerning III—6, 8 and 9. The field worker at once notes that the mating II—5 and 6 is the most important one to be studied in that this mating produced the fraternity just described. The father, described as feeble-minded, should form the basis of an extended study. It is noted that his parents died at an old age but nothing further is known of either of them. If possible, they should be proven to be either normal or nervously affected. If normal, then it will be a profitable expenditure of time to search the ancestry and complete fraternities of each for affected individuals, in order thoroughly to test the hypothesis in this mating. Likewise the mating I—1 and 2 should be studied with a view to determining the nature of I—2; it is apparent that if I—2 is normal all of his five children should also be normal, and if they were so it would not be profitable to spend very much time in tracing further his blood. The fraternities II—1 to 5 and II—6 to 12 should be more thoroughly studied in that a detailed knowledge of each will throw light on the nature of the germ plasm producing II—5 and 6. More should also be known concerning the consort of II—7 and her "blood," inasmuch as this mating was productive of abnormal offspring. The other consorts of the II generation are not so important, if on investigation the offspring prove all to be normal. Likewise the consorts of III are not so important because their children are all very young; however, for study a few years hence it would be highly desirable to have these persons accurately described, and such description should be made if the requisite information can be secured without too great an expenditure of time.

In this pedigree the field worker has charted the males to the right and the females to the left; this should be reversed for the sake of uniformity of practice. Indicate the year of birth on the pedigree only in the case of young children. This pedigree contains few persons marked (N), normal. It is highly desirable that every person studied should be so thoroughly described that he or she can either be safely marked (N) or given a proper mark designating the type of abnormality possessed.

APPENDIX 1.

Forms for written Description of the Chart.

A.

Name No.

Date

Source of information.

a. name. b. relation to patient. c. address.

The patient and his home.

a. Description of the patient.

b. Neighborhood.—good, fair, bad.

c. Housing.—tenement, separate house, number of rooms used, condition.

d. Home treatment.—good, bad, fair, neglected.

e. Number in the household.—adults, number normal, number defective; children, number normal, number defective; number of boarders.

f. Financial condition.—good, moderate, poor, very poor.

g. Education.—time in school, grade attended, reason for leaving.

A description of the individuals on the chart, covering the points mentioned in the text (pages 90 and 91), is written up under the following headings:

The patient's fraternity.

The patient's father and his fraternity.

The patient's father's parents and their fraternities.

The patient's mother and her fraternity.

The patient's mother's parents and their fraternities.

B.

Suggested in the case of extended pedigrees, particularly those made independently of institutions.

General statement relating to locality (exact position, topography, density of population and, in rural localities, adaptability to agriculture), housing, social condition, and origin.

Order of personal descriptions. Begin with earliest generation, describe father, mother and all their children. Take the oldest married child (at left hand end of fraternity) describe his consort and their progeny. Next describe their oldest married child, his or her consort and progeny and so on, to the youngest generation. Then return to the next married sib of the next to the youngest fraternity already described, and give an account of his consort and their children, and so continue, working from left to right until all fraternities have been described. For example, in Plate I the following order is followed: I, 1, 2, 3, II 1, 2, 3, II (2), 7, III 1; II (3), 4, III 2, 3, 4, 5, 6, 7, 8, I 4, 5, II (4) 5, 6.

PLATE I.

Example of a simple pedigree chart.

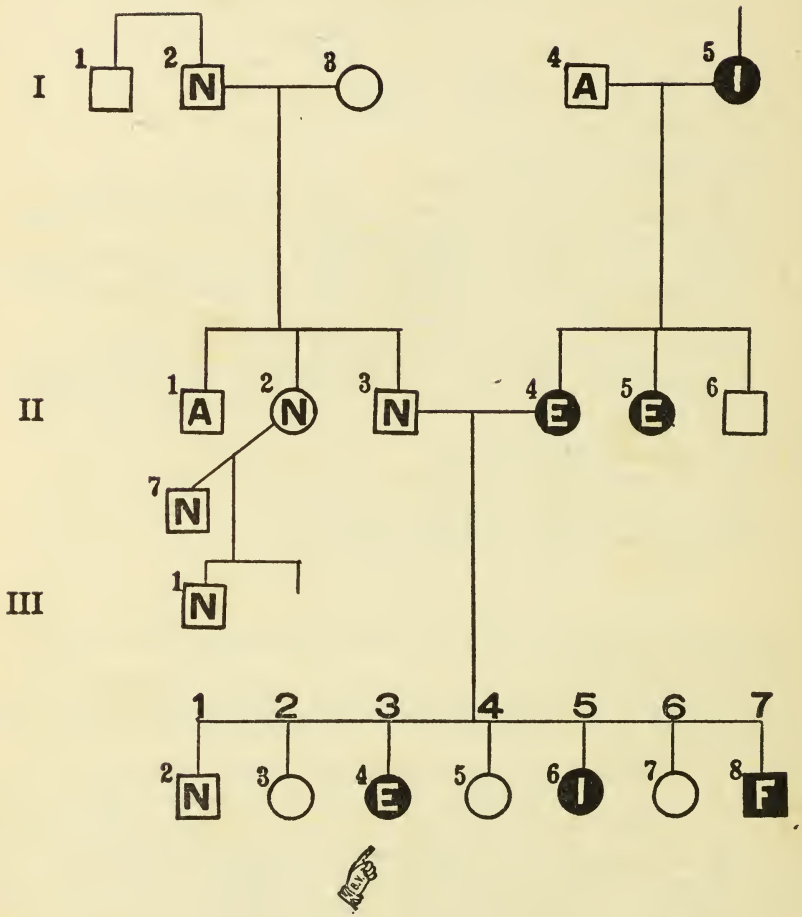

PLATE II.

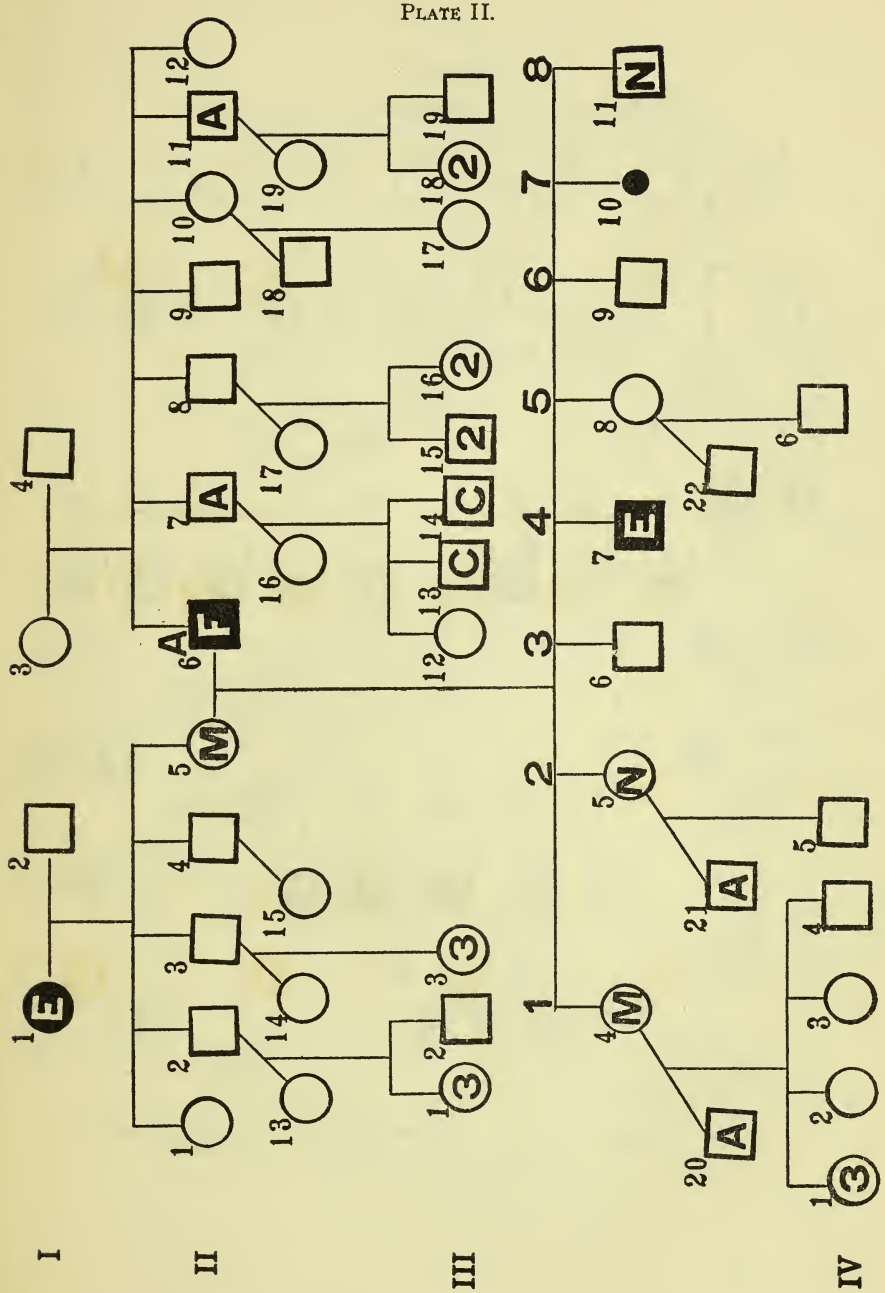

PLATE III.

Hypothetical pedigree, illustrating use of symbols.

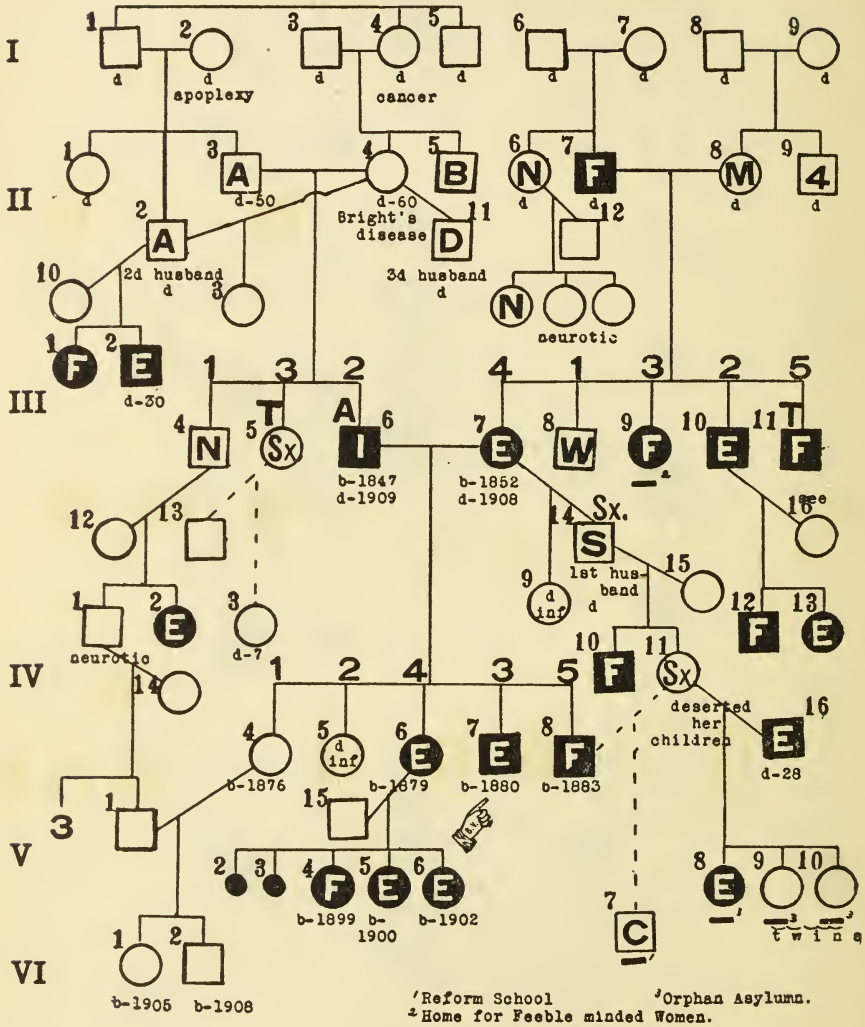

PLATE IV.

Hypothetical pedigree, illustrating use of symbols.

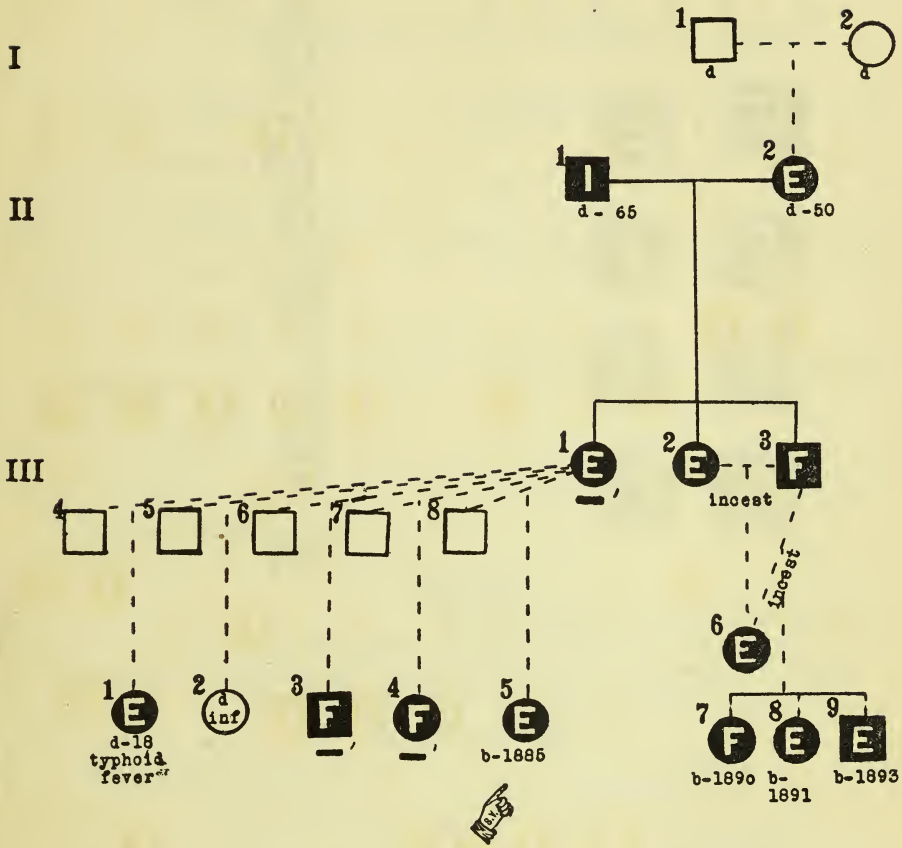

PLATE V.

KEY TO HEREDITY CHART.

	Male.	Female.	
	□	○	No Data.
Red	E	E	Epileptic.
Black	F	F	Feeble-minded.
Green	I	I	Insane.
Violet	C	C	Criminalistic.

Other letters used in or around the squares or circles are:

A	Alcoholic.
B	Blind.
D	Deaf.
M	Migraneous.
N	Normal.
Ne.	Neurotic.
P	Paralytic.
Sx.	Sexually immoral.
S	Syphilitic.
T	Tubercular.
W	Wanderer or confirmed runaway.

FIGURES.

Above the line—Order in the line of birth.

Above the square or circle—Individual reference number.

Below the square or circle—Age at time of death or date of birth or death.

In squares or circles—Number of individuals of that sex.

SMALL LETTERS.

b—Born.

† (d) inf.—Died in infancy.

† or (d) Died or Dead.

m—Married.

LINES.

Solid—Connects married individuals and fraternities.

Dotted—Not married or illegitimate.

For display charts. { Green—Paternal side } of individual under study.
Red—Maternal side }
Violet—Connects related charts or individuals on more than one chart.

SYMBOLS.

Shows patient at institution reporting.

Miscarriage or stillbirth.

Institutional care (place under symbol).

PLATE VI.

SYNOPSIS OF ABBREVIATIONS ADOPTED.

To be used with full face symbols.

a, alcoholic insanity.

d, dementia precox.

g, general paralysis of the insane.

m, manic depressive insanity.

p, paranoia.

s, senile dementia.

t, traumatic insanity.

To be written on chart.

bd Bright's disease.
ca cancer.
cb childbirth.
ch chorea.
cr cripple.
df deformed.
dp dementia precox.
dt delirium tremens.
dy dropsy.
ec eccentricity.
en encephalitis.
go goitre.
gp general paralysis of the insane.
hy hysteria.
id ill-defined organic disease.
kd kidney disease.
la locomotor ataxia.
md manic depressive insanity.
np neuropathic condition.
obs obesity.
pa paranoia.
pn pneumonia.
sh shiftlessness.
sm simple meningitis.
sb softening of the brain.
sco scoliosis.
sd senile dementia.
su suicide.
va varices, varicose veins.
ve vertigo.
x unknown.
? implies doubt.

Eugenics Record Office

BULLETIN No. 8

SOME PROBLEMS IN THE STUDY OF HEREDITY IN MENTAL DISEASES

BY

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SOME PROBLEMS IN THE STUDY OF HEREDITY IN MENTAL DISEASES.*

By HENRY A. COTTON, M. D.,
Medical Director, New Jersey State Hospital, at Trenton.

Without doubt, from the standpoint of prophylaxis, at least, the most important aspect of psychiatry has always been the factor of heredity. It has been known for years, in a general way, that heredity has played an important rôle in the etiology of the psychoses, but we have been very far from having any definite knowledge of the subject. We have, until quite recently, been satisfied with vague opinions regarding "insanity in the family," of those mentally affected, without due regard to the nature of the malady in other members of the family.

The records of the patients in insane hospitals, even in those hospitals pretending to do modern scientific work, are woefully incomplete, inadequate and often inaccurate. In the older methods of examination the statistical data regarding heredity, as well as etiology in general, was based upon the statements of the committing physician. No attempt was made to inquire systematically into these questions, and every one knows how unreliable such statements received must have been. Even with modern methods, but very little progress was shown, as the source of information from the families of patients was also limited. The most conscientious work of the assistant physicians would fail to bring out all the important factors of heredity. Often the husband or wife of a patient was the only one who came to visit the patient, and usually they knew very little of the family history of each other. Hence, statistics made up from such sources, while much more accurate and complete than statistics collected as above, at the same time the best obtainable by this method were open to serious and just criticism.

* Elaboration of a paper read by title at the sixty-seventh annual meeting of the American Medico-Psychological Association, Denver, Colo., June 19-22, 1911.

We have been content until quite recently with the loose methods of investigating this important subject, and the fact that insanity occurred in the family in such and such a proportion of our patients was considered enough for our present knowledge.

It is usual to see in statistics of insane hospitals a summary of the number of cases in which heredity was a factor, such heredity being merely insanity in the family. We have been aware that certain forms of insanity exhibited more heredity than others. But we have had no accurate knowledge of the nature and type of mental disease in ancestors and immediate families of our patients. We must all plead guilty to our lack of interest in this subject, and we must acknowledge our indebtedness to one outside of our work who has succeeded in arousing our interest and stimulating our endeavors in this field.

Prof. Charles B. Davenport, of the Eugenics Section of the American Breeders' Association, and in charge of the Eugenics Record Office at Cold Spring Harbor, has been the one to stimulate our interest in this field.

In this office, in which Prof. H. H. Laughlin has been associated with Prof. Davenport, the modern ideas of the study of heredity had its birth. The office has been in existence less than three years, but has already accomplished a great deal, and through this agency many state hospitals, as well as other institutions for the care of epileptics and the feebleminded, have been supplied with competent and well-trained field workers, who are now engaged in vigorously attacking the problem in a score of centers. The workers have been prepared by means of a summer school, which lasts six weeks. During this time systematic instruction is given in collecting data in the field, tabulating such data, and in making heredity charts. The workers are usually chosen from among college graduates, and those having some experience in social service work, preferably women.

It is with some pride that we note that New Jersey has been the pioneer in this special line of work. The first systematic study of the question of heredity in the feebleminded was the work of Prof. Johnstone and Dr. Goddard, of the Training School, at Vineland, and Dr. Weeks, of the Epileptic Village, at Skillman, has contributed the first important contribution based upon systematic field work on the question of heredity in this class of patients.

Dr. Everett Flood, of the Epileptic Colony, at Monson, Mass., has also done valuable work in this field. These can be said to have been pioneers in this work.

The King's Park State Hospital, in the State of New York, was the first state hospital for the insane to employ field workers in connection with their study of heredity, but such work has not been continued. We believe the New Jersey State Hospital at Trenton was the first to organize a permanent department of "field work," with a special appropriation to carry on the work, in connection with systematic "after care" work, and has now two trained field workers. By combining the heredity work with the "after-care" work, we feel that a direct benefit comes to the patient, and that we can show results of a practical immediate character as well as results which might be unjustly termed of theoretical importance only.

Literature.

Although Gregor Mendel published his discoveries of laws regarding heredity, which now bear his name, and are so well known, as early as 1866, it was not until 1900, when his work was rediscovered by De Vries and others, that the importance of his work in this field was recognized. It was mainly through the work of Bateson and other Englishmen that his work received the recognition in England and this country. Since 1900 many investigators have been occupied with the problems of heredity, especially in plant and animal life. To some extent the problems of human heredity have been investigated, and the science of eugenics has now grown to considerable proportions and found an important place in our studies of the human family.

But the relation between the science of eugenics and psychiatry has but recently been established, and the literature upon the subject is as yet extremely meagre, and, with one or two exceptions, is confined exclusively to this country. In only one other country can it be said that systematic study of heredity in insanity by means of field work has been established, and that is Germany. It is all the more surprising that this country, where so much valuable research in psychiatry had been carried on, had neglected this phase of the subject, especially as Mendel was a German, and his work should have been familiar.

And up to the present only one investigator has been occupied in this field in Germany, Dr. E. Rüdin, Oberartz of the Royal Psychiatric Klinic in Munich, under the direction of Prof. Kraepelin. His work is decidedly a most important contribution to the subject. His work is of such importance to the study of heredity in mental diseases that it is worth our while to review it more in detail, which will be done later. Since 1909, Rüdin has been Oberartz of the Psychiatric Klinic at Munich, and during this period he has personally collected material for the study of the complex problems of this question. (This valuable contribution of his is published in the Zeitschrift fur Gesammte Neurologie and Psychiatrie, Seventh Vol., 5th Part, Nov. 18, 1911.)

What makes the work of Rüdin so remarkable and noteworthy is the fact that he has done field work personally, and at his own expense. He gives up his position at the clinic for several months each year and goes into the field to collect this data. He has copies of the rosters of all the Bavarian institutions, and is able to get fairly good records of the patients who were in these institutions, although patients were committed a great many years ago. The fact that he has access to accurate records is a great advantage, especially in case of preceding generations.

From the majority of records of the hospitals in this country, even up to within a short time ago, it would be impossible to make any sort of a diagnosis of the patients admitted to them. In some cases one can get more accurate information upon which to base a diagnosis from the description of the cases who never come into the hospital than in patients who are admitted.

Another fact of importance connected with Rüdin's work is that he does his field work himself, and, consequently, is able to get better descriptions, to observe, and to " size up " the members of the family and classify them accordingly. Without financial assistance, and against difficulties which would seem insurmountable to us, he has achieved some wonderful results. He has accurate family histories in a great number of cases, representing various types of mental disease. Although he has so much material at his disposal, he feels that he has not done enough work to justify any general statements or formulation of laws regarding the heredity factors of insanity.

The Eugenics Record Office has issued bulletins from time to time, based upon the work done by their field workers in various institutions.

The first bulletin is on "The Heredity of Feeblemindedness," by H. H. Goddard, Ph. D., of the Training School, at Vineland, and is an extremely interesting and valuable contribution to the subject. Fifteen charts are shown. While it is a preliminary report of the work being done at Vineland, it is well worth reading by those interested.

Bulletin No. II, from the same office, is a compilation by Dr. Davenport, Prof. H. H. Laughlin, Dr. Weeks, Prof. Johnstone and Dr. Goddard, on the "Study of Human Heredity," and methods of collecting, charting and analyzing data. It has been the object of those interested in this subject to have a uniform method of charting which could be adopted by all institutions, so that the various institutions would understand, without difficulty, the work that is being done in other institutions.

Bulletin III is by Gertrude L. Cannon and A. J. Rosanoff, M. D., of the King's Park State Hospital, and is a preliminary report of the work done at the King's Park State Hospital, New York. This work is principally an outline of the methods used, and a brief description of the Mendelian laws.

The fourth bulletin, by Drs. Weeks and Davenport, is the result of systematic field work at the Epileptic Village, and is a valuable contribution to the inheritance of epilepsy. The authors give the following conclusions as the result of their work:

1. The method of field-study of epileptic families combined with the modern biological methods of analysis of hereditary data constitute a vastly improved means of inquiry into inheritance of epilepsy.

2. Epilepsy and feeblemindedness show a great similarity of behavior in heredity, supporting the hypothesis that such is due to the absence of a protoplasmic factor, that determines complete nervous development.

3. When both parents are either epileptic or feebleminded, all their offspring are so likewise.

4. The conditions, named migraine, chorea, paralysis, and extreme nervousness, behave as though due to a simplex condition of the protoplastic factor that conditions complete nervous development; *i. e.*, persons belonging to these classes usually carry some wholly defective germ cells. Such persons may be called "tainted."

5. When such a tainted individual is mated to a defective, about one-half of the offspring are defective.

6. When a simplex normal is mated with a defective, about half the offspring are normal; the others defective or neurotic.

7. When both parents are simplex in nervous development and "tainted," about one-quarter (actually 30 per cent) are defective.

8. The proportion of tainted offspring is not noticeably higher when both parents show the same nervous defect.

9. Normal parents that have epileptic offspring usually show gross nervous defect in their close relatives.

10. While we recognize that "epilepsy" is a complex, yet there is a classical type numerically so preponderant that, in the mass, "epilepsy" acts like a unit defect.

11. Our data point to a poisoning in slight degree of germ cells by alcohol, but the evidence is hardly crucial.

12. There is evidence that in epileptic strains the proportions of epileptic children in the latest complete generation is double that of the preceding; but there is no evidence that in these epileptic strains the average number of children in a fraternity is greater than in the population at large. Provided matings continue as at present, and no additional restraint is imposed, the proportion of epileptics in New Jersey would double every thirty years.

13. The most effective mode of preventing the increase of epileptics that society would probably countenance is the segregation during the reproductive period of all epileptics.

Dr. Rosanoff and Florence I. Orr, B. S., are the authors of Bulletin No. V, entitled, "The Study of Heredity in Insanity in the Light of the Mendelian Theory." The conclusions of the authors are based upon the investigation of about 73 cases, and the heredity charts in these cases are reproduced. This represents 206 different matings, total, 1097 offspring. A table is given, showing the proportion of normal and neuropathic offspring, which resulted from various types of matings, compared to the theoretical expectations according to the Mendelian theory. The authors have considered that the neuropathic constitution, in reality, consists of a series of units, which are distinct, at least from the standpoint of clinical definition, though at the same time in manner related to each other. One is forced to emphasize here the fact that it is necessary to keep an open mind in regard to these problems. In other words, that we must investigate the facts of the heredity of psychoses as they exist, and not to be too

prejudiced towards the Mendelian laws. Following are the conclusions given by the above authors:

1. The neuropathic constitution is transmitted from generation to generation in the manner of a trait, which is, in the Mendelian sense, recessive to the normal condition. Rules of theoretical expectation are accordingly as follows:

a. Both parents being neuropathic, all children will be neuropathic.

b. One parent being normal, but with the neuropathic taint from one grandparent, and the other parent being neuropathic, half the children will be neuropathic and half will be normal, but capable of transmitting the neuropathic make-up to the progeny.

c. One parent being normal and of pure normal ancestry and the other parent being neuropathic, all the children will be normal, but capable of transmitting the neuropathic make-up to their progeny.

d. Both parents being normal, but each with the neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable of transmitting the neuropathic make-up to their progeny, one-half will be normal, but capable of transmitting the neuropathic make-up, and the remaining one-fourth will be neuropathic.

e. Both parents being normal, one of pure normal ancestry and the other with the neuropathic taint from one grandparent, all the children will be normal, half of them will be capable, and half not capable of transmitting the neuropathic make-up to their progeny.

f. Both parents being normal and of pure normal ancestry, all the children will be normal and not capable of transmitting the neuropathic make-up to their progeny.

2. Various clinical neuropathic manifestations bear to one another the relationship of traits of various degrees of recessiveness; in a most marked way recoverable psychoses, though recessive as compared with the normal condition, are dominant over epilepsy and allied disorders.

3. Various other clinical neuropathic manifestations bear to one another the relationship of neuropathic equivalents; that is to say, they are conditions of the same degree of recessiveness, varying in their clinical manifestations with the personality of the subject, environmental conditions, etc.

4. All the neuropathic children, which result from a mating of the fourth type (both parents normal, but each with the neuropathic taint from one grandparent), can have, theoretically, only equivalent defects and not defects of different degrees of recessiveness.

5. Among the actual results from such matings the following have been met with:

a. Brothers and sisters suffering from clinically identical neuropathic manifestations.

b. Psychosis in one subject and peculiar or abnormal disposition, but no actual psychosis in brothers and sisters.

c. Psychosis in one subject and isolated, but clinically related symptoms in brothers or sisters; we find with particular frequency dementia præcox—fainting spells or convulsions in childhood.

d. Psychoses clinically not known to be related; senile deterioration—peculiar hysteriform psychoses.

6. Neuropathic conditions show only in about one-fourth of the cases indications for commitment to sanitariums or public institutions. The total incidence or neuropathic conditions may be roughly estimated as affecting between 1.5 and 2 per cent of the general population.

7. It is further estimated that about 30 per cent of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors and are capable under certain conditions of transmitting the neuropathic make-up to their progeny.

The methods of assuming facts, when they do not exist, is open to just criticism, and the fact that it was necessary for the authors to assume the fact of the simplex inheritance in places where information was not available, is open to criticism. It is true that these cases where the simplex inheritance is dissimilar has been treated separately and distinct from the other material. It is self-evident that the question of human inheritance presents many difficult problems, and there will be many cases that apparently do not follow any given law. The lack of matings and the absence of children in many families, or the usual "two-children" families, offers serious difficulties in making out definite laws regarding inheritance.

To some extent feeblemindedness can be considered a unit, but here one is forced to recognize the fact that imbecility itself is far from being a unit, and may be caused by entirely different factors. The grades of feeblemindedness, as outlined by Goddard, viz.: highest types, morons, next grade, feeblemindedness, and then imbecility and idiocy, are practical for a clinical classification, but from the standpoint of etiology these types may not be so distinct, and there certainly can be a distinct difference between the members of any one class. No one will deny that in feeblemindedness we have the purest form of inheritance, and that feebleminded parents, as found by Dr. Goddard, will certainly produce feebleminded children. At the same time, a no small number of cases of feeblemindedness may be the result of external causes, and not altogether due to heredity features. Infectious diseases in child-

hood, especially scarlet fever, and perhaps other fevers, cause feeblemindedness, both directly and indirectly, by arresting development through the direct action upon the cerebral tissues, and indirectly produce arrested development through deafness and other disturbance of the sensory organs.

When discussing the cause of epilepsy, one has to be especially careful not to consider this disease as a unit, a fact recognized by Weeks and Davenport. It is far better to consider the group as " the epilepsies " rather than to consider the disease as a unit. So it is even necessary, in discussing the inheritance of these simple forms of disease, to be guarded in not considering them entirely as units. At the same time, we recognize the fact that inheritance plays an important part in the production of feeblemindedness and " the epilepsies " and that the laws concerning same will be much simpler than the laws regarding other psychoses. In fact, we are forced to consider that these two diseases are subdivisions of insanity as such, and for this reason one readily sees the error in considering insanity as a unit or uniform disease.

F. W. Mott (Brain, Part 2-3, Vol. XXXIV, Nov., 1911), " Inborn Factors of Nervous and Mental Diseases," discusses the question of inheritance in general, and in particular the hereditary features of insanity. He discusses at length the laws of Galton, and is inclined to agree with his views, which laws, as we know, are opposed to those of Mendel. He also discusses the Mendelian principals at length, and gives a detailed explanation of these laws. He firmly believes in the law of sex limitation in certain types of diseases, such as color blindness and hæmophilia, and, in the field of nervous diseases, pseudohypertrophic paralysis. This form of inheritance is not only discontinued or interrupted for successive generations, but the disease is limited to one sex, although it is to be noted that the disease is transmitted by the sex in which it does not appear. Thus, it is the males who are affected in hereditary sex-limited diseases, and it is the females who transmit the disease. Mott also gives considerable space to " Nature and Nurture," and shows, conclusively, how in a great many conditions the environment and experience due to environment may have a very important bearing on inheritance. Also that a neurotic tem-

perament may be manifested in many different ways by conduct and behavior, and this neurotic temperament may be the first evidence of any degeneration in the stock. It is well that he has emphasized this important fact, for these characteristics must be looked for in collecting data for pedigrees of the insane, as it has been found that they are of as much importance as the pure mental disease in the ancestors. It is true, as he states, "that unsound stock may have successful men in the eyes of the world, but these may really form the first step in the process of degeneration, for avarice and normal guile, which made them pillars of society, may come out in the next generation as gross criminality or insanity. Mott is of the opinion that inborn factors partly, if not wholly, can account for the appearance of insanity in the stock."

Of considerable interest is the discussion of the Law of Anticipation, which was defined by Nettleship as "a manifestation of the morbid change at an earlier period of life, either in members of each succeeding generation as a whole, or as successively born children of one parentage." He gives examples of the truth of such a law. His observation, "that there is a general tendency for insanity not to proceed beyond three generations, either because of regression to the normal, or from the fact that the stock dies out," is important. But his explanation, that not infrequently the stock dies out through the inborn tendency of insanity manifesting itself in the form of congenital types, such as imbecility, or in the insanity of adolescence, is open to criticism, for it is not always true that children of insane parents are defectives. Types of insanity, of course, have to be considered, but even children of dementia præcox are frequently entirely normal, and the brothers and sisters of such patients may also be normal, although many of them appear to be peculiar. Mott gives some interesting statistical data regarding familial character of insanity, but here one is forced to call attention to the uselessness of such statistics, where insanity is considered as a unit. We call attention elsewhere to the necessity of considering various types separately, at least until we can establish some sort of relation between the various forms, especially as regards hereditary features. He gives statistics of 2246 individuals where one or more members of the family were inmates of an institution. This is all right as far as it goes, but

in our field work we frequently find evidences of mental disease in members of the family where these individuals have never been inmates of an institution. Especially is this true in early generations, where a very small percentage of those who were insane have been committed to a hospital. So that, to be accurate, one must consider these cases as well as members of the family who have been in institutions. It is also important to note that statistics based on hospital admissions alone would not truthfully represent the facts.

Mott gives the conclusions of Dr. Edward Shuster, who made the study of inheritance of the same types of insanity in 1910. They are as follows:

1. A periodically insane son or daughter is more likely to be associated with a periodically insane mother or father than if one if differently affected. In the case of two offspring in the insane there is even a greater tendency for a periodically insane male or female to be associated with a periodically insane brother or sister than with one differently affected.

2. In case of delusional insanity, the tendency for the affection to run in families is very strongly marked, and the correlation between members of the same co-fraternity is more strongly marked than between parents and offspring.

3. In the instance of primary dementia of adolescence, there is a strong correlation between members of the same co-fraternity. There is also a decided tendency indicated for the brothers and sisters of imbeciles to be also imbeciles.

4. There is no indication of general paralysis running in families. This is not surprising, as it is now recognized to be an acquired disease due to syphilitic infection. Both conclusions would seem to be justified from our knowledge at the present time. The chief criticism of Mott's work is that he has not gone carefully enough into the question, as he has practically taken only the cases which have been admitted to the institutions as a basis for his statistics, thus leaving out of consideration a large number of important individuals.

It is conclusively demonstrated in this country that only by the help of well-trained field workers can we expect to collect valuable data regarding this complex question, and, secondly, in considering the inheritance of insanity, he is inclined to treat the disease as a unit, rather than to closely differentiate the various types. We must first establish the same rules between the various types of psychoses before we can justly consider them similar or dissimilar as regards the form of inheritance. Mott's article, in all prob-

ability, represents the best work that has been done by the English in this field.

Mendelian Laws in Relation to Insanity.

In recent literature we find explanations of the principles of heredity as formulated by Mendel, but the clearest exposition of the subject is found in the work of Rüdin.

We are acquainted with the facts that the total inheritance of an individual from his parents is certain human characteristics, each of which is inherited independently of all the rest, and the inheritance of any such character is believed to be dependent on the presence in the germ plasm of a substance called the determiner.

With reference to any given character the condition of an individual may be dominant or recessive: the character is dominant when, depending upon the presence of its determiner in the germ plasm, it is plainly manifest. It is recessive when, owing to the lack of its determiner in the germ plasm, it is not present in the individual under consideration.

The symbols D and R in the following table represent the dominant and recessive conditions. In other words, D stands for the presence of the determiner of the trait, and R stands for its absence.

The following formula for six types of matings and their resulting offspring:

Type 1. $(D+D)X(D+D)=4DD.$
Type 2. $(D+D)X(D+R)=2DD+2DR.$
Type 3. $(D+D)X(R+R)=4DR.$
Type 4. $(D+R)X(D+R)=DD+2DR+RR.$
Type 5. $(D+R)X(R+R)=2DR+2RR.$
Type 6. $(R+R)X(R+R)=4RR.$

We speak of the inheritance of a character from both parents as duplex inheritance, designated by DD.

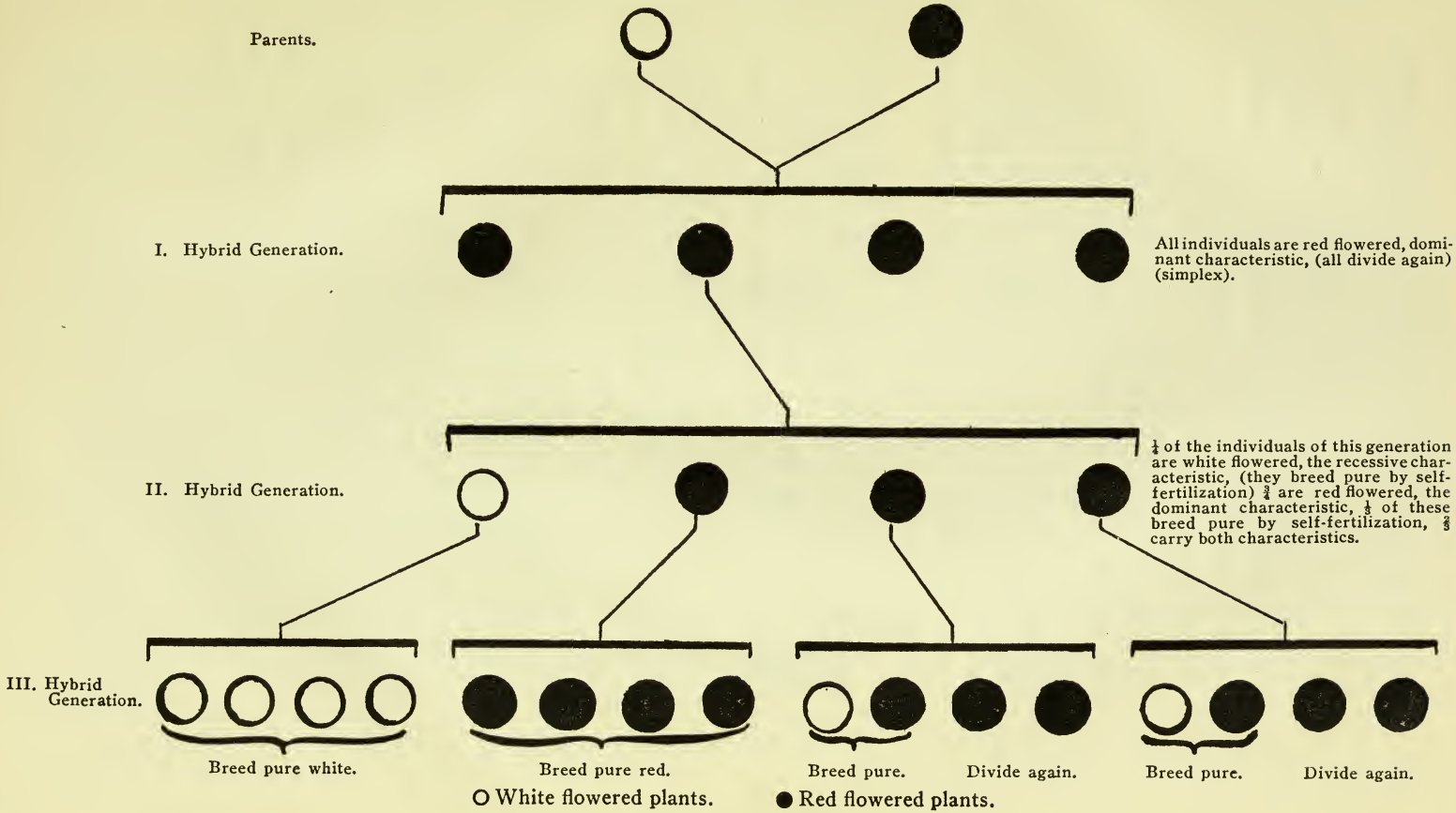
The case of inheritance of a character from one parent is spoken of as simplex inheritance, designated by the symbol DR.

In Fig. I, taken from Rüdin, we have exhibited diagrammatically the principles of the Mendelian prevalence and the rules of

FIG. I.

MENDELIAN PREVALENCE AND RULES OF DIVISION.

(Inheritance of the pea flower.)

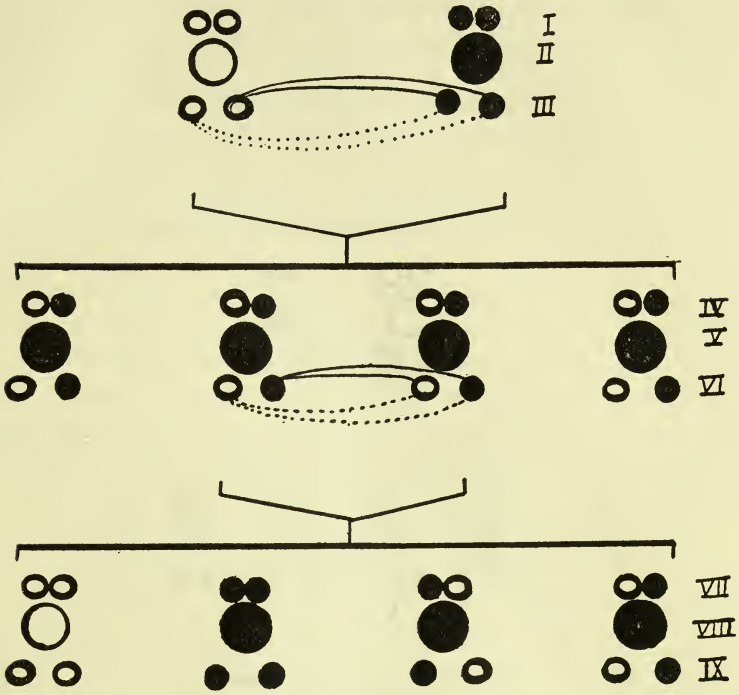


variance in the original experiment of the crossing of red and white peas. In the first hybrid generation we see that all individuals are red-flowered peas, although this generation contains also white-flowered characteristics, which are not manifest because the red is dominant. In the second hybrid generation we see the Mendelian proportions of one white to three red, in other words, one recessive and three dominant. In the third hybrid generation the white sweet pea breeds only white, one-third of the red peas breed pure red, while two-thirds of these red peas breed white and red in the proportion of one to three. This is the simplest explanation of this law. We see by this chart that the pure Mendel inheritance is not a mixed product composed of inherited characteristics, and these characteristics do not exist in a permanent combination, but always occur as separate unchanged characters in succeeding generations.

In Fig. II (after Rüdin), we see a diagrammatic explanation of this law of the regular appearance of the dominant and recessive characteristics. We see in Row I the germ plasm from which the parents develop. On the right the two black dots represent the homozygous gameten, because the germ plasm or the fertilized germ cells, gameten, has only one characteristic, that is, either for white or red. The germ plasm of these separate individuals, *i. e.*, the father and mother, are also considered as pure homozygous. By mating this pair, and following the lines in Row III, we will see there is an equal number of red and white gameten. In Row IV, which produces offspring shown as red in Row V, but, although this generation is red entirely, the gameten are not homozygous but heterozygous, that is, made up of both red and white characteristics, but because the red is dominant, the white characteristic does not appear. Now, by mating two of this generation, and noting the lines indicating combinations in Row VI, we see the reason for the proportions in the second hybrid generation. We have one white individual made up of homozygous gameten, one red homozygous and two heterozygous. Because of the red being dominant, the white characters do not show. Then in the germ plasm of these individuals we have the white producing pure white, and the red producing pure red, and the heterozygots producing both white and red.

FIG. II. (After Rüdin.)

The Experimental Crossing of the Red and White Flowered Pea.
(The "anlage" combination of the Gametes and zygots.)



○○ = Germ plasm which carries the tendency (anlage) for white flowers only.

●● = Germ plasm which carries the tendency (anlage) for red flowers only.

○● = Germ plasm which carries tendency for red as well as white flowers.

Row I. Germ plasm from which the parents are derived, they carry the one character. White or red, they are pure homozygous.

Row II. The two parents which result from the above germ plasms.

Row III. Pure, homozygous germ plasm which is produced by the parents.

Row IV. Result of the union of the unit characters from the parental germ plasm, heterozygous are combined germ plasms (simplex).

Row V. Here the tendency for red in the germ is dominant over the tendency for white. The flowers appear red, the first hybrid generation.

Row VI. The two characters, which are present in the heterozygous germ plasm and are derived from the parents, divide again, so that half of the germ cells bear the tendency (anlage) for white, the other half the tendency for red.

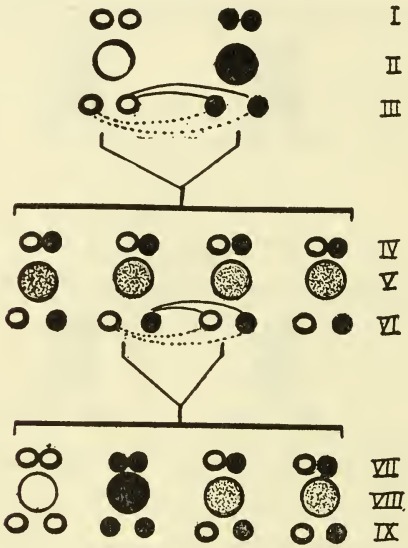
Row VII. The fourth combination of characters which occurs through the crossing of two hybrids of the first hybrid generation, two heterozygous and two homozygous.

Row VIII. Where the tendency for red is dominant over white, red flowered and white flowered individuals result from the four named germ plasms in the proportion of one to three.

Row IX. The above-named combination of germ plasms from the first hybrid generation will again divide. The one white individual, because it is produced from germ plasm with a tendency (anlage) for white only, produces germ cells with a tendency for white; one red individual with germ plasm with tendency for red only and two red individuals with both characters.

There is still another form of inheritance, which is shown in Fig. III, which is known as incomplete inheritance of the dominant characters or intermediate inheritance. This figure illustrates the mating of the red and white " wunder blume " or maribilis jalappa. By mating the red and white plant of this species we get in the

FIG. III. (After Rüdin.)
Scheme of Mendelian Inheritance of the Intermediate Type.



○○ Germ plasm, which carries the tendency (anlage) for white flowers only.
●● Germ plasm, which carries the tendency (anlage) for red flowers only.
○● Germ plasm, which carries the tendency for red flowers as well as for white flowers.
○ White flowered individual.
● Red flowered individual.
◉ Pink flowered individual.

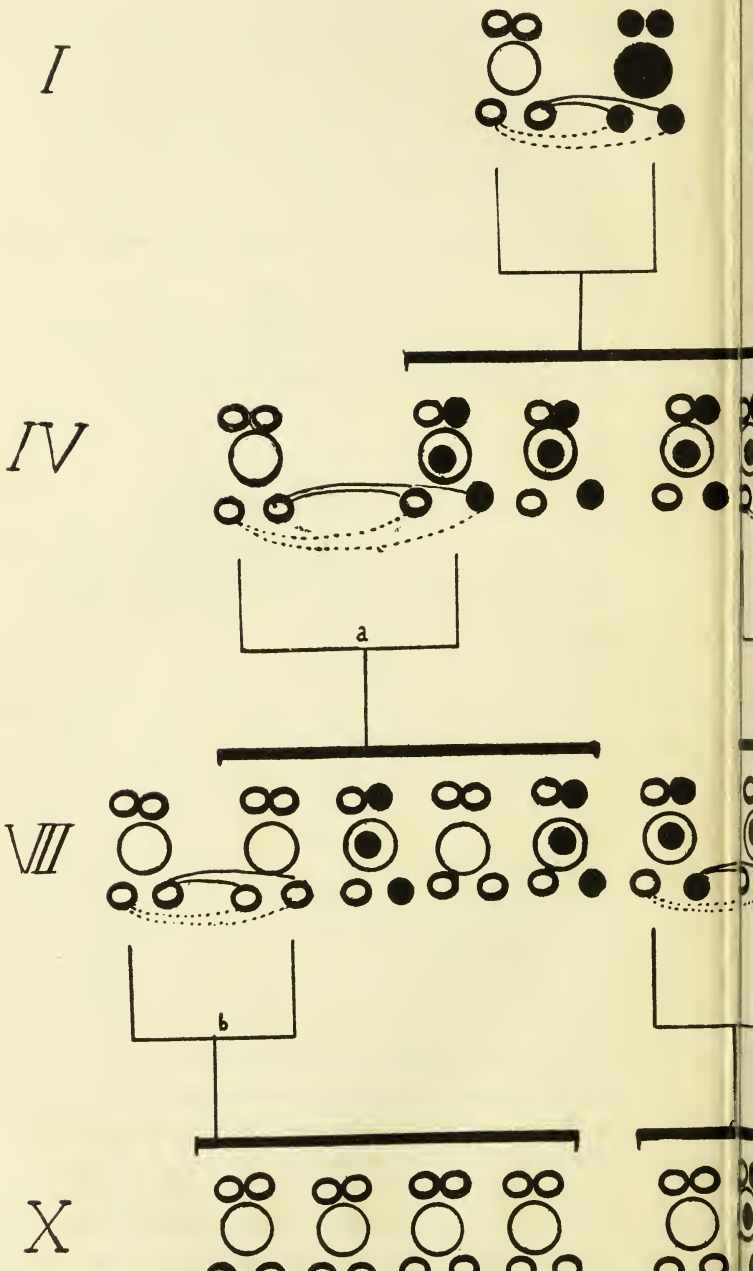
first not pure red or pure white or the prevalence of dominant characters, but the progeny shows a resulting mixture of red and white indicated by pink, but, as shown in Row IV, this progeny-colored pink is made up of heterozygous gameten, capable of producing both red and white. This is shown in the succeeding third generation, where we have one pure white individual, one pure red individual and two pink individuals. The white and red

are homozygous, while the two pink plants are heterozygous, and this explains the fact that while the law of prevalence is an important factor of Mendelian heredity, at the same time the most important fact is that the antagonistic characteristic factors do not produce any permanent combination, but always occur as a separate unchanged character in succeeding generations.

So far we have spoken of the inheritance of dominant characteristics, and this rule holds good when this dominant characteristic is an abnormality.

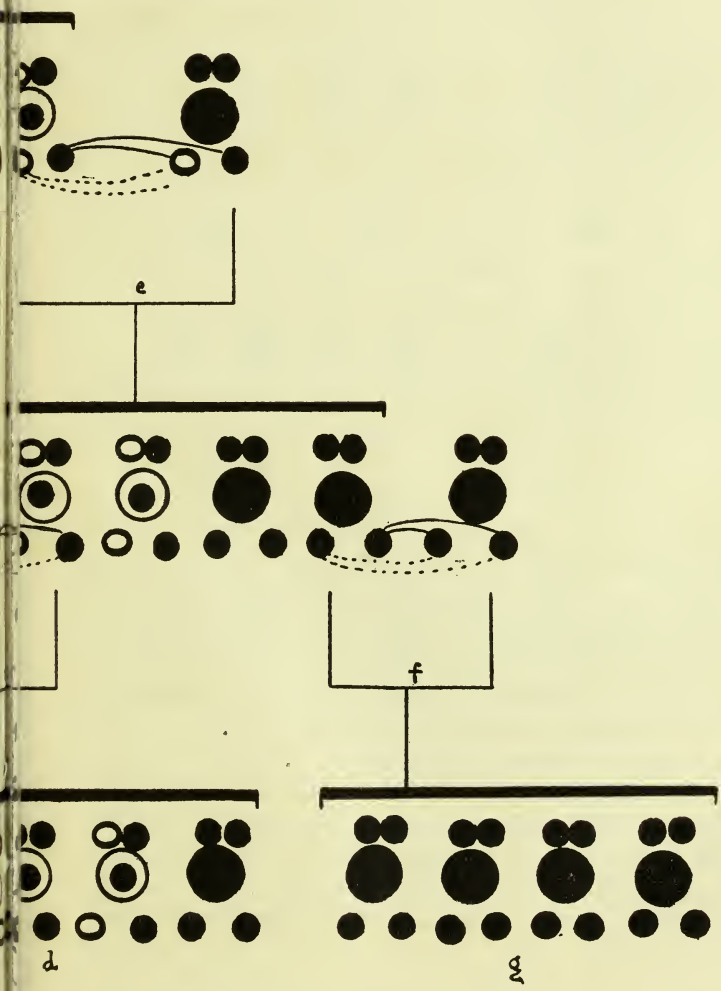
We are now to consider the laws of inheritance, where the abnormality is recessive. This is shown in Fig. IV. The recessive characteristics here are indicated by the black, hence are not to be confused with the other figures where the black indicates the dominant characters. Here there are six possibilities of a simple recessive Mendelian inheritance. In Row IV we see the result of the mating of a dominant homozygot with recessive heterozygot (Row I). All the individuals in Row IV are normal, notwithstanding the fact that they inherited a defect from one parent. This is illustrated by the white circle with the black dot. The abnormality is not apparent when, for example, the dominant normal mates with the dominant normal (in Row IV-a the dominant homozygot mates with a dominant heterozygot; Row VII-b, the dominant heterozygot mates with a dominant homozygot). There is a very important exception when the abnormality again comes to the surface, as seen in Row VII-c, where two dominant heterozygots mates with homozygots, in other words, two normal individuals with a duplex inheritance (normal and abnormal). Then we have one quarter of the progeny recessive homozygot, therefore abnormal in Row X-d. However, when recessive homozygot (abnormals) mates with dominant heterozygot (Row IV-e), then we have one-half of the progeny abnormal, and, finally, when two recessive abnormals, homozygots mate (Row VII-f) all the progeny will be abnormal (Row 10-g). When one of the parents is sick (abnormal), mated to a normal or normal mated to normal individuals, the progeny is normal children. They may also have abnormal children. Normal individuals from affected families will have normal progeny, the same as normal individuals from families without any inherited defect. We have these two phenomena, matings between normal individuals from

FIG. IV. (A
"ANLAGEN" COMBINATION O R



ER RÜDIN.)
RECESSIVE ABNORMALITIES.

○ Dominant characteristic, homozygot. Normal.
⊙ Dominant characteristic, heterozygot. Normal but with latent tendency toward abnormal.
● Recessive characteristic, homozygot. Abnormal.
○ Dominant anlage.
● Recessive anlage.



families without hereditary taint will show all normal progeny. Where both parents are abnormal all the progeny will be abnormal.

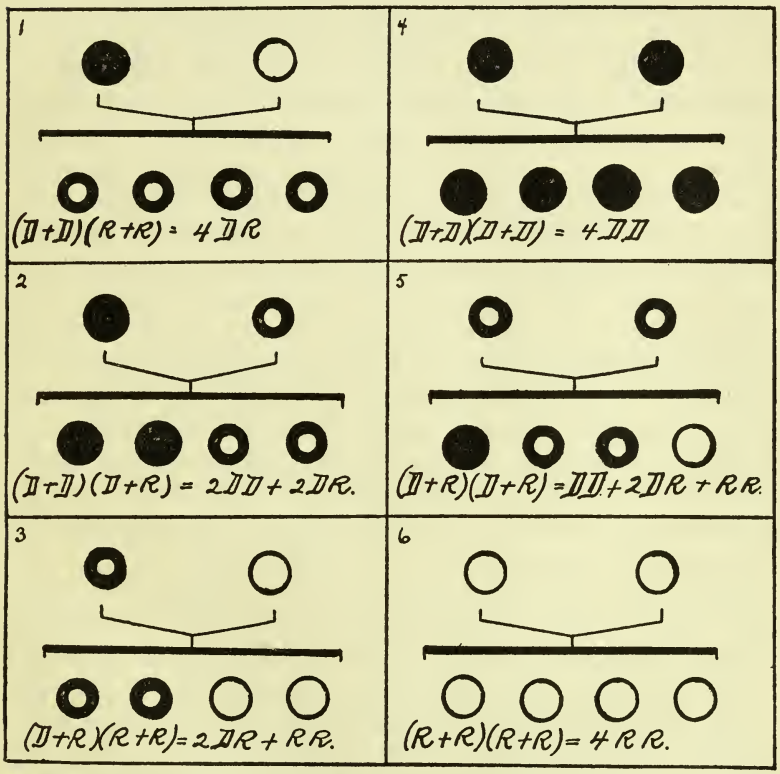
If we analyze the proportions in this chart, we will see that the apparent irregularity, with so-called exceptions, have a definite basis and follow definite rules. When two normal individuals have abnormal children, the proportion is one to four or two to eight, while parents who are normal and well, at the same time their germ plasm is not pure. Instead, the germ plasm is heterozygous. One or the other of the parents comes from ancestors, one of whom at a certain time was abnormal. When normal individuals have normal children, at least one parent has pure germ plasm, *i. e.,* homozygous, whose ancestors have never had any similar disease, or only through indirect ancestors, the grandparents or great-grandparents, or the collaterals, but never from the parents. In cases where an abnormal has normal progeny, the other parent must necessarily be homozygot (normal), and there is no tendency to abnormal. When an abnormal individual mates with a normal individual and have abnormal children, we find that the proportions of the abnormal to the normal will be as one to one, in other words, half of the children will be abnormal. In this case, however, the normal parent is heterozygot, normal.

Following Rüdin further in the discussion of this question on inheritance are given diagrammatic in Figs. V and VI, illustrating respectively the inheritance proportions, where abnormalities are dominant and where abnormalities are recessive. These diagrams give a better explanation of the proportions that are usually expressed by the formulas *DD, DR* and *RR,* which are given above.

Rüdin states that individuals with identical types of ancestors, which to all appearance, have identical characters, notwithstanding this, can have the combinations of gameten that are entirely different. Thus, in Fig. VI, in the square marked 5 and 6, the children have identical types of ancestors, but the children are not the same, and seven of the eight children who externally appear to be the same have entirely different combinations of germ plasms. The opposite also holds true that individuals can have identical gameten combinations and at the same time have quite different types of ancestors. In Fig. VI, square 2 and 3, we find quite a difference in inheritance where abnormality is dominant or recessive. In families where the abnormality is dominant there will

be a great many abnormal progeny, as shown in Fig. V, with 17 abnormal individuals, while in Fig. VI there are only seven abnormal individuals in the progeny, and particularly in each and every generation and in each and every family where one parent

FIG. V. (After Rüdin.)
Inheritance Proportions in Dominant Abnormal.



● Abnormal, dominant homozygot. ◉ Abnormal, dominant heterozygot.
○ Normal, recessive, homozygot.

is abnormal; on the other hand, in families with the recessive Mendelian abnormality in much fewer individuals, and not in each and every generation and each and every family. This latter fact is of extreme importance, for an abnormality can skip two or even three or more generations.

Contrary to the rule in the dominant type of inheritance of an abnormality, we see in families, where abnormalities are of the recessive type, that external normal individuals are not always at the same time produced by normal germ plasm, for the external appearance of normality may cause errors to be made, and this rule is important when the question of marriage of relatives, cousins, etc. While they may appear absolutely normal, at the same time the tendency to abnormal characteristics may be present in the germ plasm of each individual, consequently, the children of such mating are much more liable to be defective through the inheritance of these latent abnormalities in the parents. Each and every normal individual from a family with a dominant abnormality is also of normal germ plasm. In normal individuals, from a family of recessive abnormalities, the same can also occur, but it is not absolutely necessary Fig. VI, square 3). Through different associations of matings and pairing the resulting proportions through the experiments in animal and plant life, the homozygous and heterozygous elements have been produced and accurately settled. Each and every abnormal individual of a family with a recessive abnormality is consequently of abnormal germ plasm. On the other hand, abnormal individuals have a dominant abnormality when one of the parents is normal, possesses also an anlage to normal. In cases of dominant abnormalities there is the danger only for the progeny of the abnormals, but for the normal progeny there is no further danger.

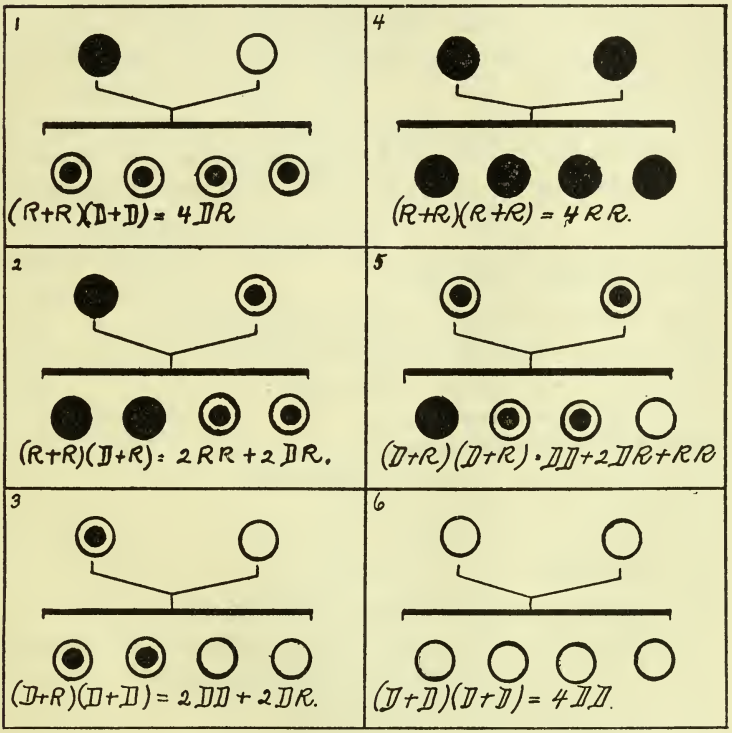
Rüdin gives us two main points from the standpoint of prophylaxis. 1. For families with inheritance of dominant abnormality, matings should be made only by normal members of a new stock, or with members of the same family. 2. In families with recessive abnormalities, matings can be made by all the individuals, but for the best results, certainly only the normal individuals, not only with new stock, but with the members of a normal new stock. These points that we have just spoken of can be said to be closely allied to the " mutation theory " of H. De Vries.

Rüdin discusses at length the Galton theory of inheritance of characteristics from ancestors, which views are utilized by Pearson, Darbishire and others, known as the Biometric School. Galton's law, concerning inheritance, is that a given person inherits one-half from the father and mother, from the grandparents one-

quarter, etc. That is, the given person is related one-half to the father and mother, and one-quarter to the grandparents, and one-sixteenth to the great grandparents. We have the following formula of the proportions of inheritance from the ancestors:

$$\tfrac{1}{2}+\tfrac{1}{4}+\tfrac{1}{8}+1/16+\ldots\ldots=1.$$

FIG. VI. (After Rüdin.)
Inheritance Proportion in Recessive Abnormal.



● Abnormal, recessive homozygot. ⊙ Normal, heterozygot.
O Normal, dominant homozygot.

Rüdin opposes this law of Galton, which has had such an effect upon the English school. He maintains that a given person does not inherit half from the father and mother, or one-quarter from the grandparents, but inherits distinct characteristics of the fathers or mothers or grandparents. In other words, from the Mendelian point of view, a person may inherit characteristics which make

him directly related to any one of his ancestors, or there may be no points of resemblance. Rüdin further discusses the complication which arises when one and the same abnormality is dominant for male members of a family, on the other hand, recessive for female members of the same family.

In Fig. VII is shown the well-known chart of Bateson, exhibiting the inheritance of color blindness. This peculiar form of inheritance occurs in other diseases, especially in hæmophilia. This form of inheritance was looked on as an exception to the Mendelian rule. By such charts analyzed closely, it is seen that they follow a fixed rule.

Rüdin gives, further, a large number of characteristics and traits in both the botanical and zoological fields. But of interest to us here are the characteristics often dominant in human individuals.

The Hapsburg lower lip in the male sex is almost exclusively dominant over the normal lips.

Single births dominant over twins and triplets.

Huntingdon's chorea dominant over normal.

Familial periodic paralysis over normal.

Porokeratosis over normal.

Night blindness over normal.

Progressive muscular atrophy over normal.

Hæmeturia over normal.

Ptosis familias over normal.

Normal dominant over amaurotic idiocy.

Many familial muscular diseases over normal.

Familial psoriasis and cerebella hereditary ataxia over normal.

Many forms of ichthosis palmaris over normal.

Normal dominates over albuminurea.

Brachydactyle or hyperphlange over normal.

A great many skin diseases dominant over normal.

Diabetes incipidis ever normal.

Some forms of glaucoma over normal.

Normal over retinis pigmentosa.

Color blindness in males over normal.

Hæmophilia in males over normal.

Pseudo-hypertrophic muscular paralysis (Gower's) over normal.

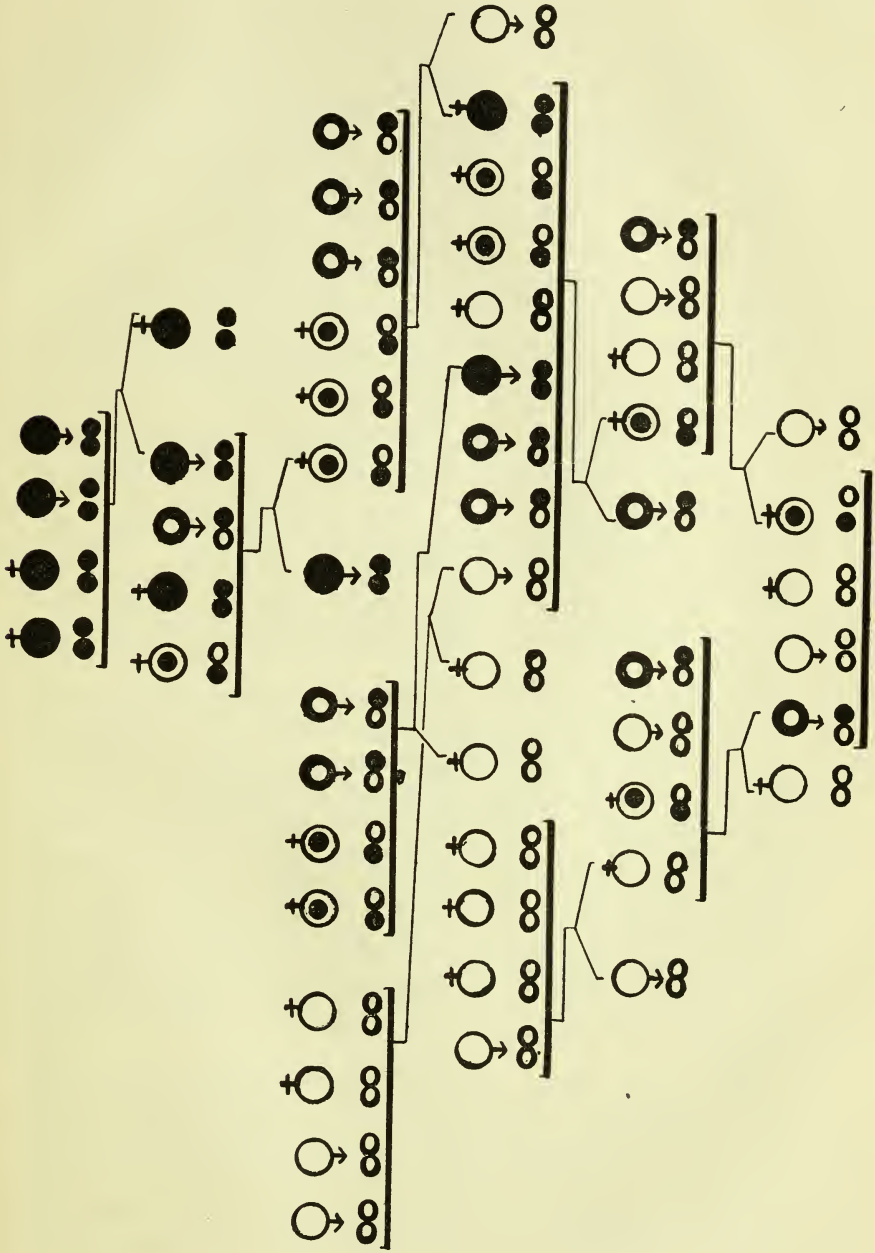


FIG. VII. (AFTER BATESON.)
THE INHERITANCE OF COLOR BLINDNESS.

The Problems in Psychiatry.

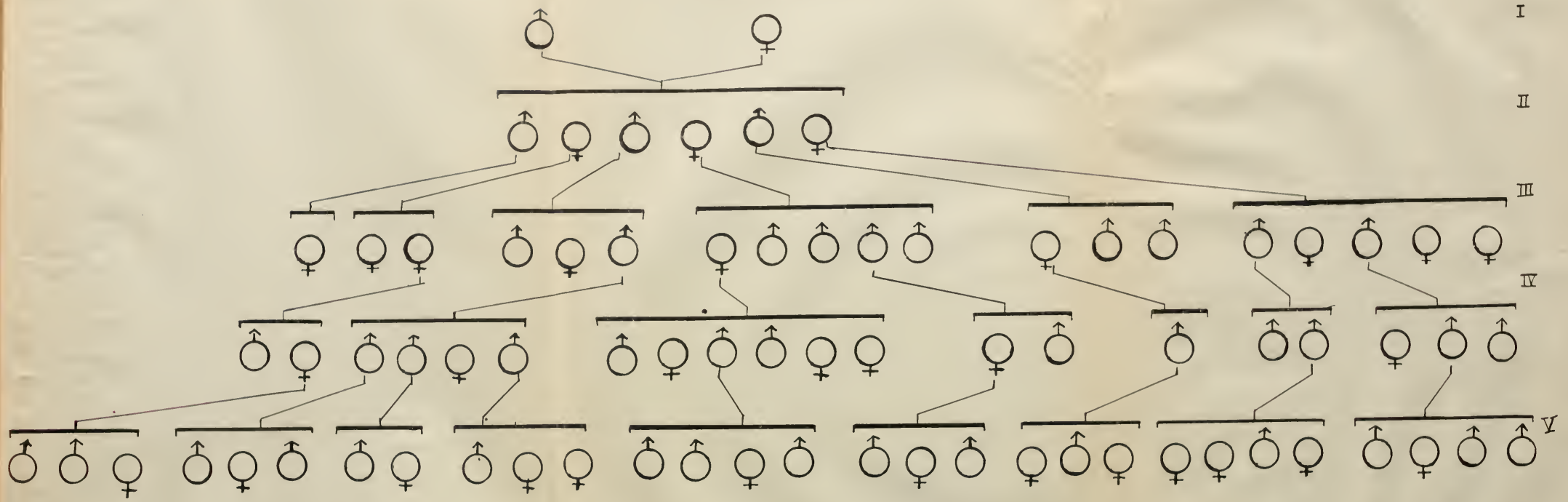
The problems relating to psychiatry will, therefore, be much more complex from our standpoint, for in a great many types external factors play a much more important rôle in the production of psychoses than the hereditary features. Especially is this true of the types which are due to the direct effect of toxins and poisons. Such is the case, for instance, in general paralysis, where we know to a certainty that the disease is not dependent upon heredity, but upon the effects of previous infection of syphilis. Delirious conditions, exhaustion psychoses, and, to some extent, manic-depressive insanity, might be produced by external factors which largely outweigh any effect of defective inheritance.

Among the problems met with by psychiatrists will be: 1st, study of direct inheritance of certain types. 2d, the effects upon the succeeding generations of the neuropathic constitutions as expressed by eccentricities, peculiarities, alcoholism, etc., in the parents. 3d, to what extent these factors are responsible for the occurrence of various types of psychoses in the progeny. 4th, the effect of the occurrence of certain types of psychoses in the ancestors upon the production of either similar or dissimilar types in the progeny.

Part of the work of the State Hospital, at Trenton, has been to collect as much accurate data as possible of the families and ancestors of patients coming under our care. It is a tremendous task to analyze this data, and often it is impossible to come to conclusions regarding the types of psychoses occurring in ancestors where we have only the description handed down from generation to generation. One has to be extremely careful not to be biased and make the cases fit certain laws. None the less, the value of such work is apparent when we consider the marked difference in the number of individuals about whom we now obtain information to the work previously done without the assistance of field workers.

While field workers are not trained psychiatrists, at the same time, we endeavor to have them attend the staff meetings whenever they are not in the field, to get some general idea of symptoms and diagnoses. In this way they become familiar with some of the important symptoms to be looked for, the age of the onset and whether individuals recover from their disease or become chronic,

FIG. VIII. (After Rüdin.)
Inheritance Chart.



and other points of importance. It is well that they do not know too much about diagnoses, as they might easily fall into the error of making certain diseases fit certain diagnoses, whereas, now their principal part is to collect *facts,* and then these facts are worked over and analyzed. When insufficient data is present no diagnosis is made and the case is considered as unclassified. We have been able to secure valuable data in a large number of cases, and will continue to make systematic investigations in all psychoses before giving any definite conclusions.

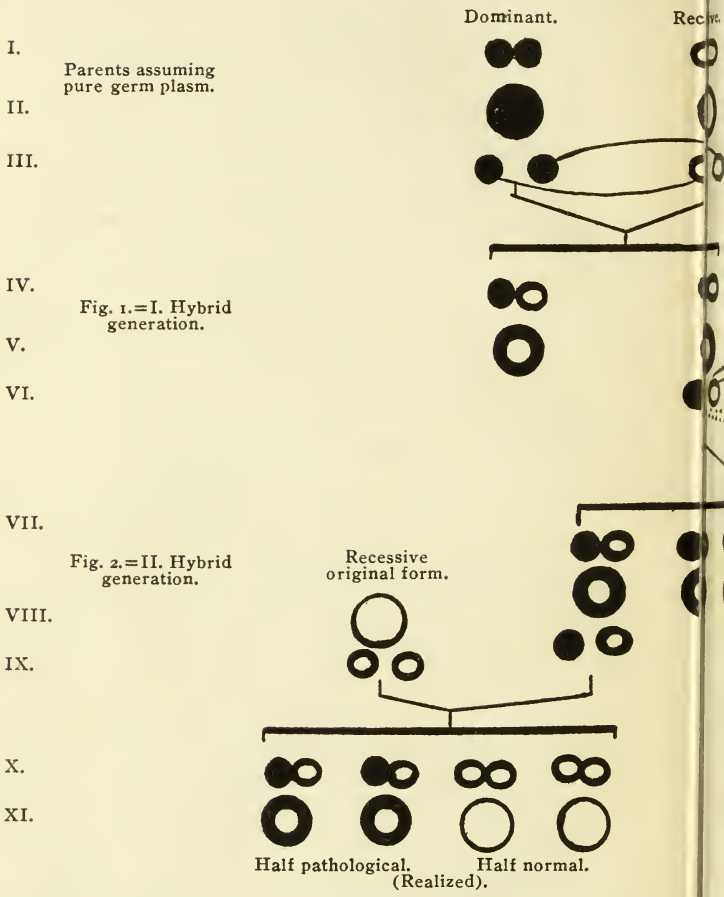
Rüdin states further that in the realm of psychiatry not enough work has been done to say with certainty whether these diseases follow the Mendelian laws or not, and he thinks it will be quite a long time before this question can be fully settled. He disagrees with Herron, that mental diseases do not follow any Mendelian laws, that they are neither dominant or recessive. He is inclined to think that the inheritance of dementia præcox follows recessive type, but the question cannot be settled at the present time. He is also inclined to think that manic-depressive insanity is a dominant type of inheritance. Although he thinks he has evidence which would substantiate these views, at the same time he is not willing to say that these diseases represent two separate types of inheritance. Many psychopathic states and defective conditions, he thinks, follow the same rule as in manic-depressive insanity. From the material at hand, he is inclined to think that intermediate types of inheritance, where there is a mixture in the offspring of the two distinct psychopathic conditions in the parents, is very seldom found. On the other hand, we see a certain similarity between psychopathic diseases in both parents and their offspring.

Rüdin enters into a lengthy discussion of the question of correlation, but for the present we will not get into a discussion of this principle.

He goes into a detailed discussion of the ways and means of systematic investigation of family histories of patients, and in Fig. VIII is reproduced his heredity chart. As will be seen, this method of charting differs somewhat from the method shown in Plate I. It is a question whether this is a simpler method of charting heredity than the former one. Instead of representing the matings by a line between two parents, Rüdin's method, as can be seen by his chart, is, to my mind, a better one, principally

FIG. X.

THEORETICAL EXPLANATION OF HE



The following combinations are not realized in the reality, because the s fails too in the actuality.

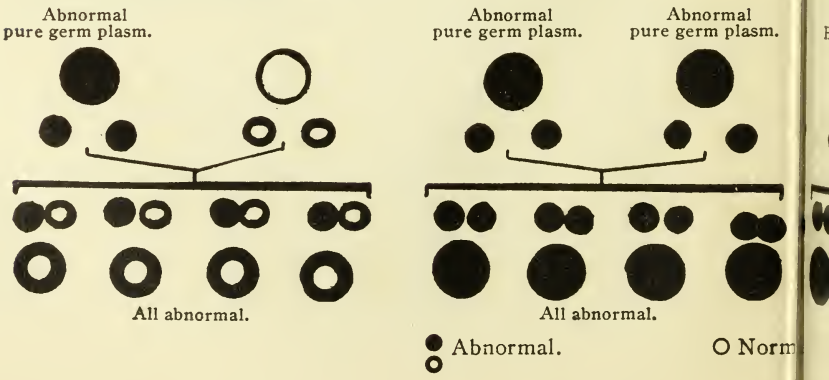
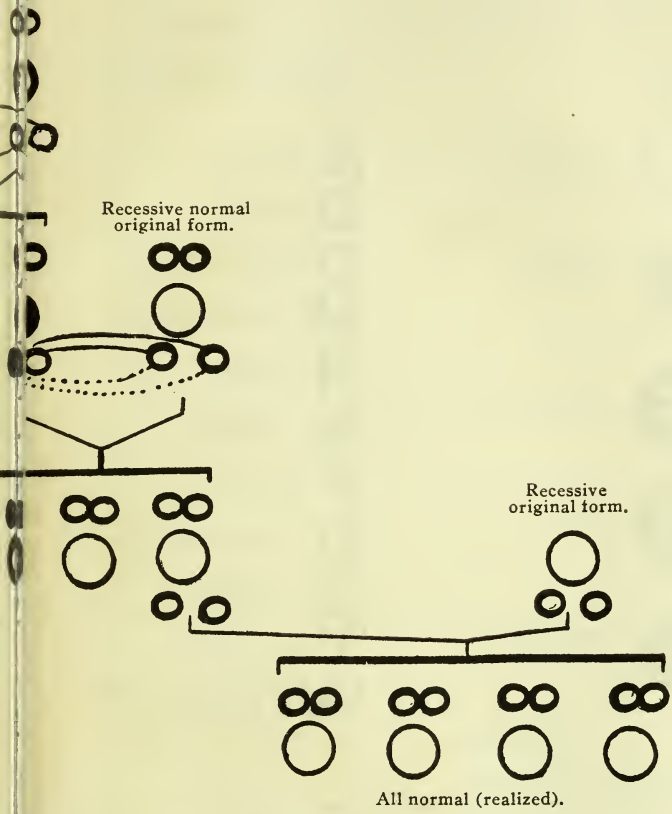


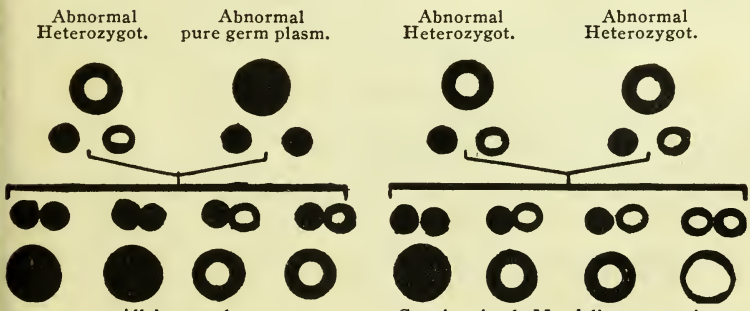
FIG. 1.

THE REDUCTION PHALANGES.

Recessive.



position of the pure germ plasm of the abnormal and the mated abnormals



Allabn ormal.

Genuine simple Mendelian proportion which must result when the abnormals (occuring for the first time) are mated.

PLATE I.

KEY TO HEREDITY CHART, TAKEN FROM EUGENICS RECORD OFFICE, BULLETIN NO. 2.

	Male.	Female.	
	□	○	No Data.
Red	E	E	Epileptic.
Black	F	F	Feeble-minded.
Green	I	I	Insane.
Violet	C	C	Criminalistic.

Other letters used in or around the squares or circles are:

- **A** Alcoholic.
- **B** Blind.
- **D** Deaf.
- **M** Migraneous.
- **N** Normal.
- **Ne.** Neurotic.
- **P** Paralytic.
- **Sx.** Sexually immoral.
- **S** Syphilitic.
- **T** Tubercular.
- **W** Wanderer or confirmed runaway.

FIGURES.

Above the line—Order in the line of birth.
Above the square or circle—Individual reference number.
Below the square or circle—Age at time of death or date of birth or death.
In squares or circles—Number of individuals of that sex.

SMALL LETTERS.

b—Born.
† (d) inf.—Died in infancy.
† or (d) Died or dead.
m—Married.

LINES.

Solid—Connects married individuals and fraternities.
Dotted—Not married or illegitimate.
For display charts. { Green—Paternal side / Red—Maternal side } of individual under study.
Violet—Connects related charts or individuals on more than one chart.

SYMBOLS.

— — Shows patient at institution reporting.

● Miscarriage or stillbirth.

▬ Institutional care (place under symbol).

because it allows the brothers and sisters of the family to be placed directly in series, while, on the other chart, it is found necessary to separate these brothers and sisters in order to get in all of the matings. Even when matings are represented by drop-

PLATE II.

ABBREVIATIONS FOR CHARTS FROM EUGENICS RECORD OFFICE, BULL. NO. 2

To be used with full face symbols.

a, alcoholic insanity.	p, paranoia.
d, dementia precox.	s, senile dementia.
g, general paralysis of the insane.	
m, manic depressive insanity.	t, traumatic insanity.

To be written on chart.

bd Bright's disease.	*la* locomotor ataxia.
ca cancer.	*md* manic depressive insanity.
cb childbirth.	*np* neuropathic condition.
ch chorea.	*obs* obesity.
cr cripple.	*pa* paranoia.
df deformed.	*pn* pneumonia.
dp dementia precox.	*sh* shiftlessness.
dt delirium tremens.	*sm* simple meningitis.
dy dropsy.	*sb* softening of the brain.
ec excentricity.	*sco* scoliosis.
en encephalitis.	*sd* senile dementia.
go goitre.	*su* suicide.
gp general paralysis of the insane	*va* varices, varicose veins.
hy hysteria.	*ve* vertigo.
id ill-defined organic disease.	*x* unknown.
kd kidney disease.	? implies doubt.

ping one parent below the line, as is done at the Epileptic Village and the Training School, at Vineland, there is more or less confusion. In Rüdin's method one can see at a glance the number of brothers and sisters, and the proportion of those affected to the normals. The biological symbols used by Rüdin are not as clear as the symbols now in use, and shown in Plate I.

We have adopted at this hospital a combination between these two methods, in which the only change is the method of mating individuals. All other symbols are the same as the original method shown in Plate I.

Rüdin further gives some very complete printed blanks to be filled out by members of the family of the patient, or by a field worker. These are very complicated, and go much into detail, and for our use are rather too bulky.

The work of Rüdin is especially valuable to those working in this field, as many valuable suggestions are given, methods outlined and the essential data to be obtained to make the work valuable. Many of the problems are discussed and methods of attack suggested.

The Work of the Trenton State Hospital.

It will not be out of place here to describe the methods used at this hospital, where we combine "field work" for the study of heredity with "after-care" work.

We have had for a year two trained field workers, supplied through the courtesy of Dr. Charles B. Davenport, to collect data in regard to hereditary factors in the family history of patients. We have not limited them to any certain line, but have insisted that all possible information in regard to relatives should be obtained. In one instance one field worker obtained information in regard to 3300 members of a family group. This family group was located in one of the northern counties of the state, and had intermarried to such an extent that only five distinct families were represented. Of this number, 76 were insane, 22 were patients in the State Hospital, at Trenton, 14 in other hospitals and 40 not committed. Following is a list of the various abnormal individuals:

Sexual offenders	50
Epileptics	5
Alcohol	46
Feebleminded	13
Cancer	19
Sarcoma	1
Blind	2
Congenital defective	1

In practically every case investigated it is possible to obtain some information in not less than 200 members of a family, and sometimes a great many more. The field workers have found no difficulty in obtaining this information, and, without exception, they have received courteous treatment from the individuals whom they have visited. We find that the families are much interested in the work and will give all the information possible. The field worker becomes acquainted with the patient, and she talks with the patient before going to the family, and carries messages back and forth, and in this way establishes friendly relations. They spend on an average of fifteen days a month in the field. The rest of the time is spent at the hospital, writing up histories and making out charts. They do not attempt to make diagnoses, but take down all that is given by the relatives. Whenever the family physicians know anything about the family, they are visited, and their opinions also noted. Where relatives have been in the hospital, reference is made to this and a diagnosis made from the records when possible. When relatives have been in other hospitals, either in this state or in any other state, we have endeavored to obtain a copy of the records of these institutions.

The patients in the hospital are catalogued according to communities, towns, cities, etc., and when the field worker goes into a certain district she has the names of the discharged patients who are living in that community. A visit is made to these discharged patients to learn something as to their condition, and often the environment is such that it is necessary to report this to the hospital, and then advice can be given to the family as to the right method to pursue to prevent the recurrence of an attack.

This "after-care" work is a very important part of our field work, and has resulted in much good to discharged patients. Several times during the year the field workers devoted all their time to looking up discharged patients. Besides looking up the heredity in families, they inquire into the habits, domestic relations, occupation, and any other factors which are wanted by the physicians. In certain cases, where the statements of the family were questioned, the field workers had to go personally into the community, and they were able to prove or disprove these statements.

We have now collected a large number of pedigrees, averaging 200 or more to a family. It is not my purpose to go into any close

analysis of these charts, but a few are given merely to show the progress of the work.

In Chart I we have a pedigree of a case of neurasthenia. The generations are given on the left-hand side of the chart. Each individual is numbered according to that generation. A transcript of the notes is given in this case to show the method of the work.

To summarize, we have a patient, a neurasthenic, one of three children, a sister of whom was epileptic and a brother nervous. The father was a manic-depressive case, who committed suicide, and the mother was neurotic. Father's family is apparently of good stock. The mother's family, however, shows marked defects. Maternal grandfather was a neurasthenic. Maternal grandmother was also a neurasthenic. One maternal uncle epileptic, and another alcoholic. Maternal aunt suffered from manic-depressive insanity, but recovered. An epileptic aunt has one epileptic boy. One of patient's great-great grandmothers, on the mother's side, was insane for 30 years, died at the age of 60, following the death of child, from which she did not recover. In the maternal grandparents' line there is a good deal of nervousness and neurasthenia. IV-39 was a patient in this hospital, manic-depressive insanity, recovered, and married a former patient. His wife had another attack, and recently the man committed suicide. His father was also a manic-depressive case, and committed suicide.

Following are the notes made by the field worker in this case:

H. H., neurasthenia (sexual) on constitutional basis. Admitted July 24, 1911. Age 20.

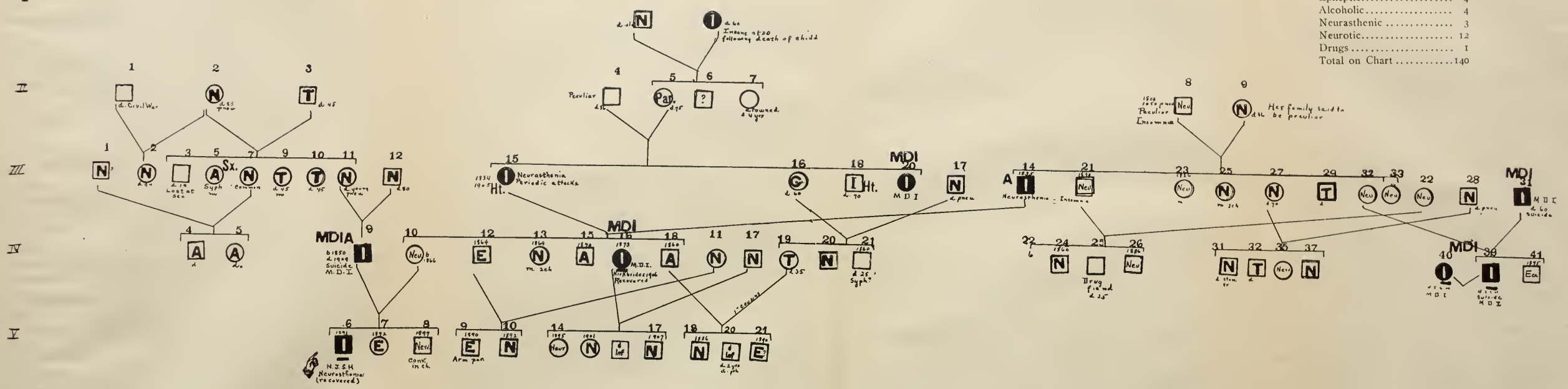
H. H., born in 1891, oldest child of John G. H. and Harriet S. H. He has always been extremely nervous since early childhood, had never been like other children and has always been a source of constant worry to his mother. He has always read "deep" books and stayed indoors to read them. Many of these books were quack medical books. He is the oldest of three children. The next child, a girl, Helen, is nervous and has suffered from convulsions after eating something which did not agree with her. It is perhaps epilepsy, as a brother of her mother suffers from epilepsy. The youngest child, a boy, is very nervous. There is a strong neuropathic tendency throughout the family, past as well as present generations. There is no insanity in the father's family, though there is a tendency toward sex perversion on the paternal grandmother's side. The patient's father himself committed suicide following two years drinking heavily after business reverses. The mother's family is all neuropathic, very few normal individuals to be found in the entire history. A great many of the people not committed were in a much more dangerous condition than the patient him-

18
I
Ht.
d. 70
21
1160
d 25'
Syph?

HH

CHART I.

Insane	9
Epileptic	4
Alcoholic	4
Neurasthenic	3
Neurotic	12
Drugs	1
Total on Chart	140



self. The maternal grandparents and great grandparents were eccentric, a great-great grandmother was insane, a maternal aunt was insane and recovered, a maternal uncle epileptic, a maternal great aunt and uncle insane, though never committed. A second cousin insane and, in this institution, recovered. Many others neurotic.

I. Nothing known of this generation of H.

II-2. E. P., married first a man by the name of H. He was killed in the Civil War. She died at 85 of pneumonia, and was normal always. She had one daughter by this first marriage, Eliza.

III-2. E. H., married C. F. (III-I), of W., N. J. She died at the age of 94 years. They had no children, but brought up J. H., the patient's father.

II-3. J. B., E. P.'s second husband died at 45, T. B. He was normal mentally. They had six children, James, Lydia, Angeline, Harris, Jane, Martha.

III-3. James, lost at sea, age 19.

III-5. Lydia B, who is still living. She is a *sex offender,* is alcoholic, has had syphilis and is described as a hard, bad woman. She married E. F. (II-4), a politician, of N., who is dead. Cause unknown. They had one child, Lizzie.

IV-2. Lizzie, who of T. B. She married and had one child, that died at birth.

III-7. A. B., still living, married and had two children. She is described as being "common." Her children were Edward and Harriet.

IV-4. Edward, very alcoholic, died of asthma. Married.

IV-5. Harriet, very alcoholic, died of dropsy while still young. Married. No children.

III-9. H. B., died at 45 of T. B. She married E. J., of N. They had one son.

IV-7. M. J., born 1865, married, and had four children, Raymond (LV-2-5), Perry, Anna May, Mildred, all normal children.

III-10. Jane, died at 45 of T. B.

III-11. M. B., died very young of pneumonia. She married.

III-12. E. H., of N. He died of old age at 80. He married again and had four children. Nothing known of them. They had one son, J. H., the patient's father.

IV-9. J. H., born 1850. He was a newspaper man, and, following business reverses, took to drinking heavily for two years. He quit drinking, but felt the disgrace so keenly he *committed suicide.* He must have been temporarily insane, for he had made all his plans for the next day—died 1899—suicide. He married Harriet S.

IV-15. Charles, born 1870, works on railroad, is normal, but drinks quite heavily.

IV-16. Louise S., born 1873. She was always nervous, even as a child. She was finally committed to *Hospital,* 1896. She remained there three or four months, but it was a year before she fully recovered. *Diagnosis, melancholia.* She married S. C., a school principal of W. They have had four children, Mildred, Frances, Cecil, and a baby that died at 11 days.

V-14. Mildred, born 1895, very *nervous.*

V-15. Frances, born 1901.

V-16. Boy, died at 11 days.

V-17. Cecil, born 1907, normal.

IV-18. David S., born 1860. Periodically alcoholic. He married Ella K., a first cousin, who died of T. B. at 35 years. They had three children, Clarence, Tuttle, Lester.

V-18. Clarence, born 1886, a government life saver. He is delicate, but normal.

V-19. He married G. T. They have one daughter.

VI. Ruth, born 1909.

V-20. Tuttle, died of diphtheria at 2 years.

V-21. Lester, born 1890, a farmer at F. He had *severe convulsions* up to the time he was 14 years. None since.

I-1. S. L., died very old. Married H. T.

I-2. H. T., *insane.* She went insane following the death by drowning of her 4-year-old daughter. She was kept at home and was mildly demented. Died at 60. They had three children, Margaret, Charles and the girl who was drowned.

II-5. Margaret L., died at 75 of paralysis. She married (II-4) F. C., a miller of F. He was of rather weak character and *was peculiar.* Died at 85 of old age. They had four children, Hannah, Mary, John, Anna.

III-15. Hannah (patient's grandmother), married C. S.

III-16. Mary, died at 60 of *cancer* of stomach. Married W. K. (III-17), who died of pneumonia. They had three children, Ella, Frank, Edward.

IV-9. E. K., married her first cousin, D. S. (IV-18). She died at 35 of T. B.

IV-20. Frank, living, normal.

IV-21. Edward, died at 25 in 1885, after 3 or 4 years sickness. He lost use of limbs, flesh rotted away, thinks it may have been syphilis.

III-18. John, died at 70 of heart failure. *He told lies, did not seem to know they were lies.* Married H. B., who is still living. No children.

III-20. Anna C. *She is subject to depressed spells. Has always posed as a martyr,* knowing she will be rewarded hereafter. Tells malicious lies about the neighbors and friends, seemingly believing them to be true.

II-8. D. S., born in 1808, died in 1850 of pneumonia. He was always nervous and peculiar. Suffered from *insomnia* always. He married (II-9) H. H., who died of old age at 86. She was normal, though her family is said to have been queer. They had fourteen children, Charles, Kate, Elizabeth, Jacob, Anna, Harriet, William, Helen, and six that died in infancy.

III-14. Charles (patient's grandfather).

III-21. Jacob, born 1832, still living. He is a newspaper man, an editor at times. He has been *neurotic* for years. Has suffered from *insomnia* and is *childish now.* He married Martha J. M., who is very nervous. Still living. They had nine children, Robert, Albert, Warren, and six that died in infancy.

IV. H. S., born in H. in 1866, a daughter of C., and H. S. She is of a highly *nervous temperament.* Worries over H., over the other children, etc. She recognizes plainly the neurotic tendency in the family. They have three children, Hamilton, Helen and Jack.

V-6. H. H., born 1891. *Admitted to N. J. S. H.* in July 1911, diagnosed *neurasthenia* (sexual) *on constitutional basis.*

V-7. H. H., born 1892. Nervous temperament. She has had severe convulsions since infancy whenever anything she eats disagrees with her. Had one severe convulsion, summer, 1911. *Epilepsy.*

V-8. J. H., born 1897. Is extremely *nervous.* Had convulsions while teething.

III-14. C. S., born 1835. Lived in H., a mason by trade. He has always been ugly and *irritable, "devilish"* at times. Seemed to try to torment his family, drove his wife nearly insane, with his tormenting. Has been a steady drinker all his adult life. He married (III-15).

III-15. H. C., of F. She was one of four children. She was born in 1834, died in 1905 of dropsy and heart trouble. She was very nervous, almost, if not, insane, at times, when she became so excited that she had to be restrained. She and C. S. had six children, Harriet, Walter, Jennie, Charles, Louise, David.

IV-11. Walter, born in 1864. He is an electrician in N. Has suffered from *epilepsy* all his life. Is rather irritable and hard to get along with. He married L. H., who is strong and well. They have two sons, George and Ben.

V-9. George, born 1890, had severe convulsions as a child, one arm has been paralyzed since he was 6 or 7 years of age. *Epilepsy (?).*

V-10. Bert, born 1892, normal.

IV-13. Jennie S., born 1889. She is normal in every way. Married Richard N., of F., N. J., painter and decorator. Three children, Joseph, Ethel, Richard.

V-11. Joseph, born 1894.

V-12. Ethel, born 1897.

V-13. Richard, born 1902.

IV-24. Robert, born 1860. A musician in P. He married J. V., of L. No children.

IV-25. Albert, died at 25. He was a dentist, and became a morphine fiend, which drug probably caused his death.

IV-26. Warren, born 1886, a farmer. Very nervous. Married. No children.

III-23. Elizabeth, born 1826. *Very nervous.* Married E. T., who died of Bright's disease. No children.

III-25, Kate, still living. Married R. O., of H., N. J. They had several children, only two lived to grow up, Harry and Richard.

IV-31. Harry, a traveling man, married M. S., who died of stomach trouble. They had two children, a girl and a boy.

IV-33. R. O., died when a young man, of Bright's disease. He was a doctor.

III-27. A. S., normal. Died at 70 years of old age. She married T. T., who died of pneumonia. They had four children, Melville, Kate, Frank, Edward.

IV-31. Melville T, died of stomach trouble. He married M. C. They had two children, Melville and Anna.

IV-33. Kate, very nervous, married C. F., who died of appendicitis. They had two children, Norman and Charles.

IV-37. Frank, normal, married Olive —. They have 5 children.

III-29. William, died of T. B., while still a young man.

III-32. Harriet S., died of uræmic poisoning. She was always *neurotic,* always doctoring for her nerves. If she had not been so well taken care of would probably have been a neurasthenic case. She married W. S., a school principal, who *committed suicide* at 60 years. They had two children, Forrest and Lyle.

IV-39. F. S., admitted to N. J. S. H. in 1907. Discharged in 1908. A case of manic-depressive insanity, manic attack. Died March, 1912, suicide. He married E. D. C., whom he met while in the hospital. She was admitted in 1906, discharged in 1908, manic-depressive insanity, depressed type. Readmitted Febuary, 1912, M. D. I., manic type.

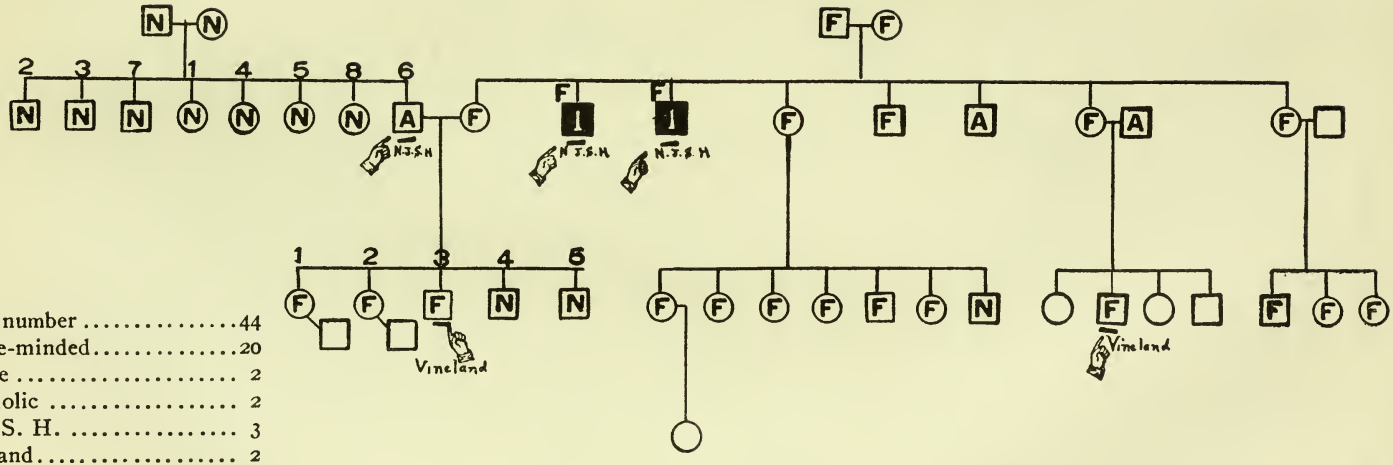
IV-41. L. S., born in 1875. He is a civil engineer, and is rather *eccentric.*

III-33. H. S., born in 1850. She is *very nervous.* Unmarried.

Chart II is an illustration of the method charting that is used by the Eugenics Record Office.

CHART II.

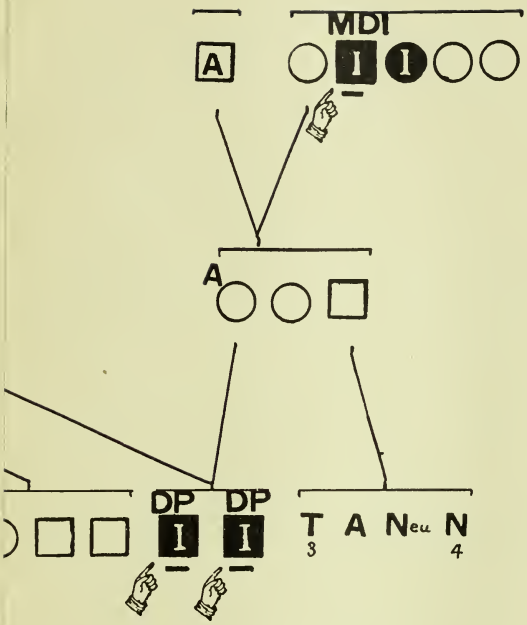
BB



Total number 44
Feeble-minded.....20
Insane 2
Alcoholic 2
N. J. S. H. 3
Vineland..... 2

There are 42 individuals in this chart, whereas, Chart I has over 70. This shows the inheritance through marriage of two feebleminded individuals. Nine children were born to this family, all of which are feebleminded, one alcoholic. Two of these children are inmates of this hospital at present. One girl of this feebleminded pair married a man, who was an alcoholic, but his family was normal. As the result of this union three are feebleminded and two normal. One feebleminded child is in Vineland. Another girl married a man, who was an alcoholic, and has one feebleminded child at Vineland. Four members of this group are now cared for by state institutions. There are altogether 22 feebleminded progeny from the original mating.

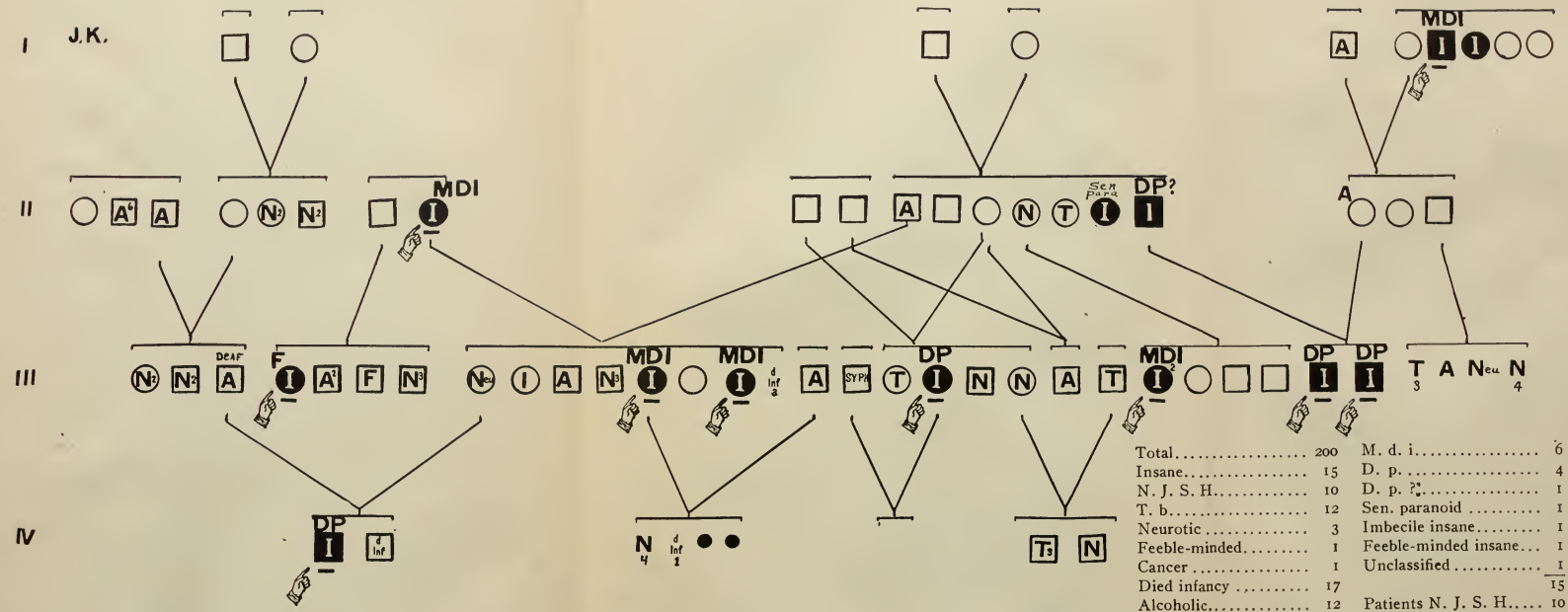
Chart III is a summary which represents 200 individuals, 15 of which were insane. Ten were in the Trenton State Hospital, and 12 were tubercular, three neurotic, one feebleminded. Seventeen died in infancy. Nineteen were alcoholic. Of the psychoses, we have six manic depressives, four dementia præcox, one questionable dementia præcox, one senile paranoid condition, one imbecility, one feebleminded and one unclassified. The paternal line is fairly good, with the exception of alcoholism. The maternal line, on the other hand, is very much affected. The mother is neurotic. One sister was a border-line case. There are two sisters manic-depressive. The mother had nine living children. Three died in infancy, making a family of 12. The mother was insane, had manic-depressive insanity, from which she recovered, and is now living at the age of 83. The father was alcoholic, had a sister who was a senile paranoid condition, and a brother dementia præcox. This brother had two children, both of which are dementia præcox, and inmates of this hospital. He married a woman put down as peculiar. A maternal cousin is a case of dementia præcox in this hospital. In this family, out of five individuals who were insane in the grandparents or great grandparents, only two were in institutions, while all the cases that were insane in the parents' children were committed to institutions. This fact will be found to run through all our charts, and one can conclude that in the preceding generations the percentage of cases who were insane and who were committed to an institution was much smaller than the percentage of the same class in present generation.



.....	200	M. d. i.	6
.....	15	D. p.	4
H.....	10	D. p. ?.....	1
.....	12	Sen. paranoid	1
.....	3	Imbecile insane.....	1
inded.....	1	Feeble-minded insane...	1
.....	1	Unclassified	1
ıncy	17		15
c.....	12	Patients N. J. S. H.....	10

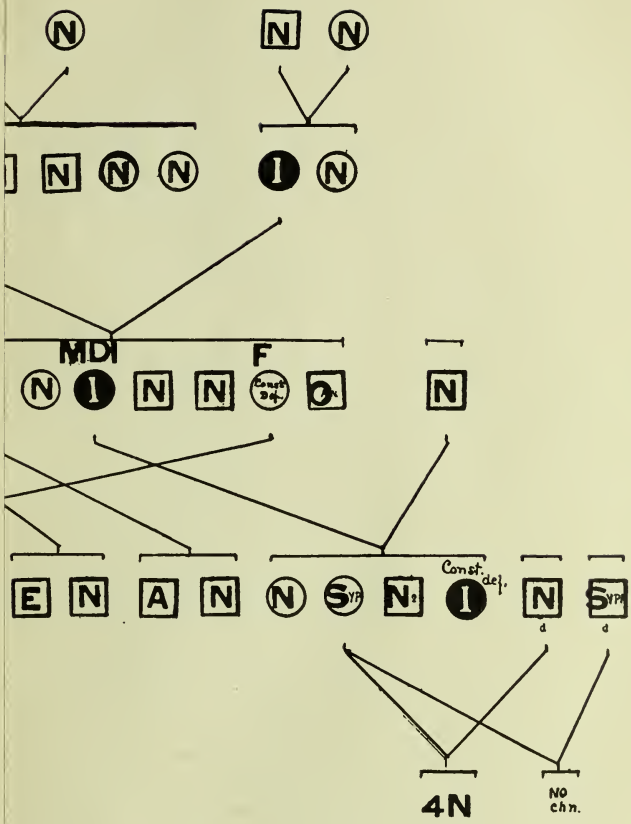
aunts m. d. i.; 3 m. 2nd cousins d. p., 1 m. d. i.
anoid.

CHART III.



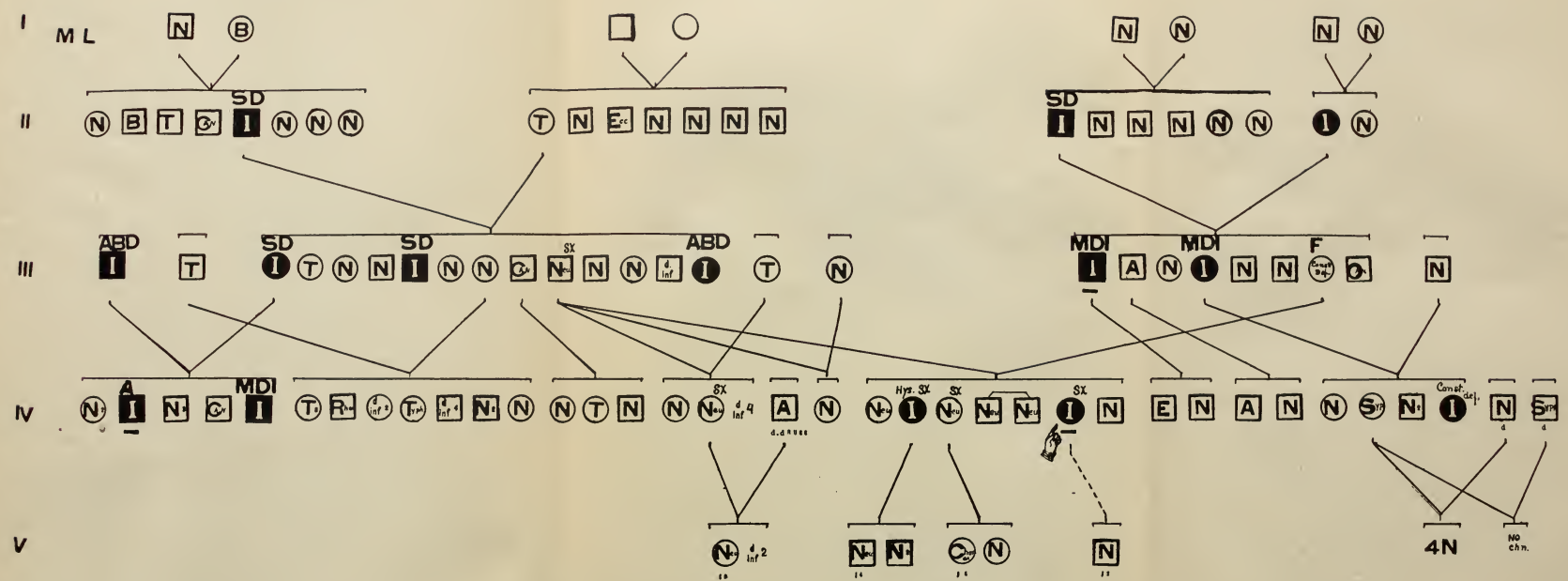
Total	200	M. d. i.	6
Insane	15	D. p.	4
N. J. S. H.	10	D. p. ??	1
T. b.	12	Sen. paranoid	1
Neurotic	3	Imbecile insane	1
Feeble-minded	1	Feeble-minded insane	1
Cancer	1	Unclassified	1
Died infancy	17		15
Alcoholic	12	Patients N. J. S. H.	10

Patient is d. p. Father alcoholic, mother neurotic. Paternal line alcoholic. Maternal line: Grandmother m. d. i.; grandfather alcoholic; 2 m. aunts m. d. i.; 3 m. 2nd cousins d. p., 1 m. d. i. and 1 f. and insane; 1 grand uncle d. p.; 1 grand aunt senile paranoid.



ychasthenic.
urotic and sx., mother constitutional defective.
: 3 senile dementia, 2 arteriosclerotic, 1 m. d. i., 1 alc. ins.
e: Grandfather senile dementia, grandmother insane, 2 m.
. insane, 1 epileptic.
e: 7 neurotic, 4 sx., 2 insane.

CHART IV.



Total	371	Insane	14	Syph.	2	Deaf	2	Alc. ins.	1	Con. def.	1
Abnormal	73	Alcoholic	6	Blind	2	Cripple	2	Sen. dem.	2	Ar. scl.	3
Normal	298	T. b.	16	Cancer	5	Con. def.	2	Sen. psyc.	3	M. d. i.	2
D. Infancy	16	Sx.	11	Epil.	1	Neur.	10	Traum. psyc.	1	Psychas.	1
			47		10		16		7		7

Patient is psychasthenic.
Father is neurotic and sx., mother constitutional defective.
Paternal line: 3 senile dementia, 2 arteriosclerotic, 1 m. d. i., 1 alc. ins.
Maternal line: Grandfather senile dementia, grandmother insane, 2 m. d. i., 1 f. insane, 1 epileptic.
Fraternal line: 7 neurotic, 4 sx., 2 insane.

This has an important bearing on the apparent increase in the number of insane in institutions at present, for I think I can be definitely shown that a large proportion of those who were insane in the community in previous generations were kept at home.

Chart IV represents a family of 371 members, in which 73 were abnormal in the following proportions: Insane, 14. Alcoholic, six. Sexual offenders, 11. Syphilitic, two. Blind, two. Cancer, five. Epileptic, one. Deaf mutes, two. Congenital, two. Constitutional defects, two. Neurotics, 10.

Diagnoses of the insane are as follows:

Alcoholic insanity	1
Senile dementia	2
Senile Psychoses	3
Senile trauma	1
Senile defective	1
Arteriosclerotic brain disease	3
Manic-depressive insanity	2
Psychasthenia	1

The patient represented by three asterisks was psychasthenic. She has six brothers and sisters. Two brothers, twins, and neurotic. Two sisters are neurotic, and one sister insane, with diagnosis of hysteria. We find that the mother was a constitutional defective. There were two brothers and sisters, each manic-depressive insanity, and the maternal grandparents were both senile psychoses. The father was neurotic or psychopathic sexual individual. He was married three times. He had two sisters. One was senile and the other arteriosclerotic. One brother suffered from senile psychosis, due to head trauma, at the age of 50. There were 13 brothers and sisters in this family. Three could be classed with the senile psychoses, and we find that the father of this family died at the age of 60, of senile dementia, while the mother came apparently from normal stock.

This chart illustrates a very important point, that is, the hereditary features of senile psychoses. Here the diagnosis is not made merely on old age, because there are in this family thirteen normal individuals living at the ages of 70, 93, 60 and 85. This tendency to senility in this family seems to be in the proportion of three to twelve, 13 children dying in infancy.

Another significant fact is the tendency in succeeding generations to develop manic-depressive insanity and psychopathic states.

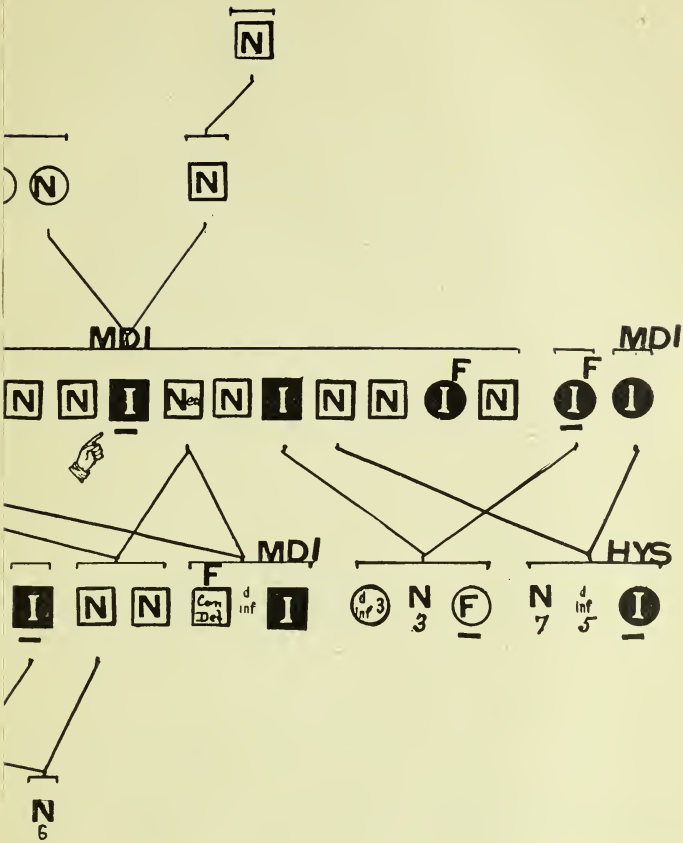
Chart V illustrates inheritance in a case of dementia præcox. The patient was one of six children, three of which died in infancy, one was neurotic and one normal. The father was a case of manic-depressive insanity, recovered, living at the age of 62. He is one of six children. One brother has arteriosclerotic brain disease, three normal, one sister neurotic. Patient's maternal grandparents, the grandmother's line, is apparently normal. His paternal grandfather was a constitutional defective, died at 66, of arteriosclerosis. The grandfather has 12 brothers and sisters. One brother is put down as melancholy. One died at the age of 42, had sunstroke, and died insane. One was a constitutional defective, died at the age of 19. There were five affected individuals in this group of 13. Seven could be put down as normal, one neurotic. The mother of the patient was neurotic. She was one of fifteen children, seven of which died in infancy. Three were normal and one had harelip. The maternal grandmother was put down as insane. The maternal grandfather apparently normal line. We have a summing up, then, of a total of two hundred ninety-two. Insane, fifteen. Epileptics, four. Feebleminded, one. Neurotic, five. Harelip, one. Syphilis, two. Sexual offenders, two.

Diagnosis of those insane are as follows:

Constitutional defective	2
Melancholia	1
Dementia præcox	1
Psychoses following sunstroke	1
Hysteria	1
Manic-depressive insanity	3
Arteriosclerosis	2
Depression	1
Feebleminded	1
Unknown	2

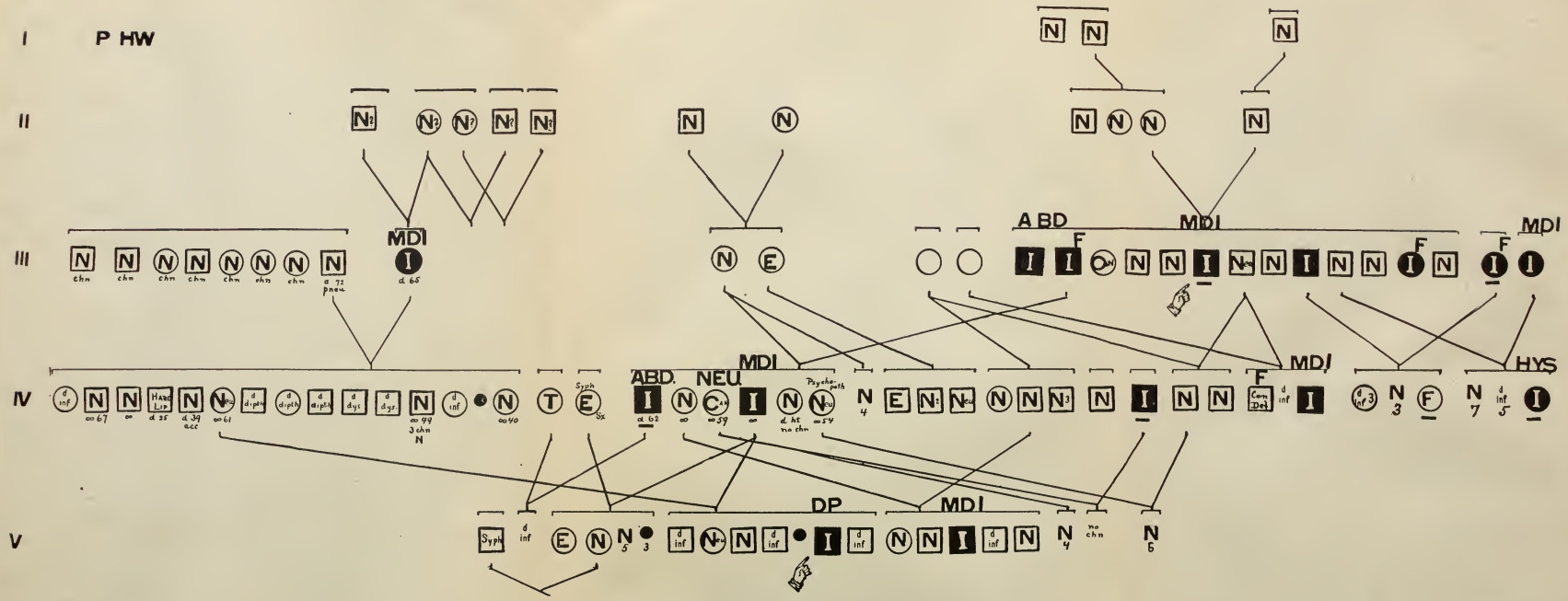
Conclusions.

We have not attempted to analyze these charts carefully, but they are given merely to illustrate the progress of the work, and also to illustrate what a difficult task the analysis of these charts means. Frequently, when a point in question is necessary, the field worker visits the family again to clear up these disputed points.



dmother m. d. i., paternal grandfather insane (f.).
neurotic.
3 feeble-minded insane, 2 feeble-minded, 5 neurotic,

CHART V.



Total	292	Art. scler	2	Epilepsy	4
Const. def	2	M. d. i.	3	Feeble-minded	1
Melancholy	1	Depression	1	Neurotic	5
D. p.	1	Feeble-minded ins.	1	Hare lip	1
Sun stroke	1	Unknown	2	Syphilis	2
Hysteria	1	Insane	15	Sx	2

Patient d. p.

Father m. d. i., mother neurotic, m. grandmother m. d. i., paternal grandfather insane (f.).

Maternal line: Clear, except 1 m. d. i., 1 neurotic.

Paternal line: 5 m. d. i., 2 arteriosclerotic, 3 feeble-minded insane, 2 feeble-minded, 5 neurotic, 3 epileptic, 1 hysterical.

In this paper no attempt has been made to give any definite conclusions regarding the hereditary factors in the various psychoses. We have reviewed some of the most important work done so far, and outlined the methods to be pursued to obtain the best results in future work.

We have also spoken of some of the difficulties to be met with, especially when analyzing the material as it comes from the field workers. It is again well to emphasize the necessity of maintaining an open mind regarding these problems, and not to be too biased in attempting to make the facts fit the Mendelian laws. At the same time, we recognize that a comprehensive knowledge of the laws will assist us materially in analyzing our data and in arriving at practical conclusions. We also feel that much valuable material will be obtained which will aid us in solving the problems of prophylaxis and prevention of mental diseases. We hope that other hospitals and institutions will adopt this method of studying these important questions.

I wish to express my thanks to Miss Florence I. Orr and Miss Elizabeth P. Moore (field workers at this hospital) for their valuable assistance in making charts and furnishing valuable data for this paper.

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Eugenics Record Office

BULLETIN No. 9

STATE LAWS LIMITING MARRIAGE SELECTION

Examined in the Light of Eugenics

By CHARLES B. DAVENPORT

Carnegie Institute of Washington,
Department of Experimental Evolution

With Two Figures and Four Tables

COLD SPRING HARBOR
JUNE, 1913

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PREFACE

Legislating may be said to be a favorite American universal panacea for social evils. It is cheap, at least. Writes an enthusiastic lady: "I want to help along Eugenics. I have a brother in the legislature and I have urged him to introduce a sterilization bill and one requiring a medical certificate before marriage. Now, is there any other law that you can suggest that he should get through?" I do not know whether this legislature has passed such laws, but I do know the same legislature has since rejected a bill to appropriate $2,000 for a first study, in the field, of the magnitude of the problem of the feeble-minded in this (Southern) State. Is it not time that legislators stopped to think if there is any knowledge extant upon which to base their laws and, if not, to make an appropriation to get the knowledge? Today, if a legislature is urged to cure any social evil it proceeds to look for and, if found, to copy any other legislation on the subject, but not to spend a dollar on a study of the subject. Very slowly, but I trust none the less surely, will legislation come to recognize that research is a *basic function of the State.*

The present BULLETIN is intended to present to legislators the results of scientific investigation into some of the problems that trouble them—problems that have first of all a *biological* basis. It is as a biologist that the author contributes this study of the biological basis of marriage laws.

Acknowledgement is gratefully made to Mrs. E. H. Harriman for financial assistance in the publication of this BULLETIN, and to the trustees of the Carnegie Institution of Washington for giving me the opportunity to prepare it.

Mr. William F. Blades, editorial secretary, has brought the abstract of marriage laws in the appendix up to date, and has aided in bringing the whole BULLETIN through the press.

Cold Spring Harbor, N. Y., April 8, 1913.

ABBREVIATIONS

In the text the following abbreviations and unfamiliar terms are used:

♂ Male.
♀ Female.
b. Born.
Sib. A full brother and sister.
Fraternity. All the full brothers and sisters, a sibship.

CERTAIN STATE LAWS LIMITING MARRIAGE SELECTION EXAMINED IN THE LIGHT OF EUGENICS

Laws restricting marriage selection are designed, on the one hand, to protect the rights of the consort who would suffer through helplessness or ignorance and, on the other, to prevent the legal consummation of such matings as are calculated to produce physically and mentally handicapped children—those deprived of "the right to be well-born." It is chiefly with this latter aim that we have here to do.

The laws of biological import restricting marriage fall into three groups: (1) laws limiting the physical and mental condition of the consorts; (2) laws limiting consanguinity; and (3) laws concerning miscegenation or the mixture of races. The eugenist is interested to examine these laws in order to see in how far they square with modern biological knowledge.

I. LAWS LIMITING THE MENTAL AND PHYSICAL CONDITION OF THE CONSORTS

The laws of many States forbid issuing marriage licenses to persons who belong to any one of certain socially unfit classes—most commonly the insane and the imbecile, idiotic, or feeble-minded. These laws are summarized in Table I. The reason for the prohibition is usually a legal one: namely, that marriage is a contract and that the affected person is incapable of making a contract. Thus the law of North Carolina provides that marriage between persons either of whom is at the time incapable of contracting for want of will or understanding shall be void. For the same reason Ohio denies a license when either of the parties at the time of making the application for it is under the influence of an intoxicating liquor or narcotic drug. Georgia and Pennsylvania have each a similar law. And the Maine law says "No insane person, or idiot, or person having a husband or wife living, is capable of contracting marriage, and such marriages are absolutely void." Here we see mental inability to understand the nature of a contract combined with legal disability resulting from the principle of monogamy.

On the other hand, in a gratifyingly large number of cases the prohibition is apparently made primarily on eugenical grounds—for the purpose of cutting off the "bad" germplasm—to diminish the number of children who will eventually require State aid. This seems to be the aim, in part at least, of the laws of Connecticut, Delaware (which excludes even the "cured" insane and any child of a parent who became insane before that child was born), Michigan (with the remarkable proviso that the disability is removed when a regularly licensed physician will certify that the afflicted person is "completely cured of such insanity, epilepsy, imbecility, or feeble-mindedness, and that there is no probability that such person will transmit any of such defects, or disabilities to the issue of such marriages"!), Minnesota (which, however, like Ohio, provides, *mirabile dictu,* that, *inter alia,* the superintendent of the State Deaf, Dumb and Blind Institute may solemnize marriages), New Jersey (which excludes epileptics and even former inmates of insane asylums and poorhouses), Utah (which excludes, *inter alia,* epileptics, except females over forty-five years of age), and Washington (which excludes, besides the usual classes, the common drunkard, habitual criminal, epileptic, or person who is afflicted with pulmonary tuberculosis in its advanced stages). In all of these special prohibitions we have internal evidence of a recognition of the dangers of continuing strains with inheritable weakness.

In another set of cases the law is intended to operate toward the prevention of venereal infection also, and is thus in harmony with recent proposals of clericals to demand a physician's certificate of health from both parties before solemnizing a marriage. Thus the Michigan law provides that no person who has been afflicted with syphilis or gonorrhea and has not been cured of the same shall be capable of contracting marriage. The Utah law is practically the same. The Washington law forbids marriage when either party has venereal disease, and "clergymen or other officers are not permitted to marry such persons. Before issuing a license the county auditor must require each applicant to file the affidavit of at least one duly licensed physician, showing that the applicants are not in the prohibited class."

Finally, in two States, the District of Columbia and Virginia, "incapacity from physical cause" annuls the marriage.

We have now to inquire whether all of these prohibitions are biologically or eugenically justified; whether there is good reason for a universal prohibition of the marriage of a feeble-minded,

TABLE I

STATES.	CONDITIONS UNDER WHICH MARRIAGE IS DENIED.												
	Epileptic.	Idiot or Imbecile.	Feeble-minded.	Habitual Criminal	Pauper.	Drunkard	Under the Influence of Alcohol.	Insane	Physical Incapacity.	Venereal Disease.	Status of "Marriage."	Maximum Penalty for Procuring Marriage.	Maximum Penalty for Parties to Marriage.
Connecticut	Either consort (or carnal knowledge)	Either consort (or carnal knowledge)	Either consort (or carnal knowledge)									Imprisonment 5 yrs. and fine to $1000	(For carnal knowledge imprisonment to 3 yrs., if woman is under 45 yrs).
Delaware		Either consort			Both consorts			One consort			"Unlawful"	Imprisonment 30 days, or fine $100	Imprisonment 30 days, or fine $100
District of Columbia		Either consort						Either consort	Either consort		Illegal and void after so decreed		
Georgia		Either consort				Either consort		Either consort			No contract	Imprisonment 1 yr. and fine $1000	Imprisonment 1 yr. and fine $1000
Hawaii		Either consort						Either consort			May be annulled upon application of next friend of affected party		
Illinois		Either consort						Either consort			Illegal, no contract	Fine $500	
Kansas	Either consort	Either consort	Either consort					Either consort (1)				Fine to $1000 and imprisonment to 1 yr.	Fine to $1000 and imprisonment to 1 yr.
Kentucky		Either consort (or carnal knowledge)						Either consort			Prohibited and void		(For carnal knowledge 20 yrs. imprisonment).
Maine		Either consort			No license to marry			Either consort			Incapable of contract	Fine $100, loss of office	Fine $100
Massachusetts		Either consort						Either consort			Void without decree or legal process		
Michigan	Unless "cured" either consort	Either consort unless "cured" (2)	Either consort until "cured"					Either consort unless "cured"		Either consort	Incapable of contract	Fine $1000 and imprisonment 5 yrs.	Fine $1000 and imprisonment 5 yrs.
Minnesota	Either consort	Either consort	Either consort					Either consort			Void without decree	Imprisonment 2 yrs.	Imprisonment 2 yrs.
Nebraska		Either consort						Either consort			"Absolutely void"		
New Jersey	Either consort	Either consort			While in institution		Either consort	Either consort (3)			No license may be issued.		
North Carolina		Either consort (4)	Either consort (4)					Either consort (4)			Void after decree of court		
Ohio	Either consort	Either consort				Either consort	Either consort	Either consort			No license may be issued		
Pennsylvania							Either consort					Fine $50 and imprisonment 60 days	
Porto Rico		Either consort	Either consort					Either consort			Incapable of contract		
Rhode Island		Either consort						Either consort			"Absolutely void"		No dower to widow, children illegitimate
South Carolina		Either consort						Either consort			Incapable of contract		
Utah	Either consort	Either consort						Either consort		Either consort (5)	"Prohibited and declared void"		
Vermont		Either consort			Either consort			Either consort			No license shall be issued		
Virginia								Either consort	Either consort		Void after decree of divorce or nullity, or the conviction of the parties		
Washington	Either consort	Either consort	Either consort	Either consort		Either consort		Either consort	Advanced tuberculosis	Either consort	No license may be issued		Fine $1000 and imprisonment 3 yrs.
West Virginia								Either consort			Void after decree of nullity (7)		
Wisconsin	Either consort	Either consort (6)	Either consort					Either consort (6)			No license may be issued	Fine $150 and imprisonment 6 mo.	Fine $150 and imprisonment 6 mo.

(1) Children born of a parent who was, at the time, insane likewise excluded from marriage.
(2) "And no probability of transmission of the disability."
(3) No inmate of an asylum unless "satisfactorily discharged."
(4) Absence of will or understanding. (5) If uncured.
(6) Imprisonment to 15 years for fornication.
(7) Such action may be brought only by a party to the contract.

epileptic, or insane person to a normal person. Theoretically, the issue of the marriage of a person thus mentally affected to a person of stock that is free from neuropathic taint should be mentally normal—or affected, at most, with a slight nervousness. But is this a common result? Let us consider certain results of matings which have been gathered by field workers of the Eugenics Record Office, and which are highly trustworthy.

1. THE FEEBLE-MINDED AND IMBECILE.

Case 1. A. B., a feeble-minded woman, married her father's first cousin, who, though stubborn and disagreeable, is a good, intelligent workman. Of the two children, one is of quite normal intelligence and behavior; the other, though of good mental capacity, is mischievous and quarrelsome (like the father) and is always getting into trouble with the other boys.—[E. R. O. MEM. No. 1, p. 44.]

Case 2. A feeble-minded woman married a normal man and had four children, all normal except one, who was alcoholic. [E. R. O. BULL. No. 1, p. 9.]

Case 3. A "degenerate" man, who was alcoholic and licentious, early married a "normal" woman and had two children, who are stated to be normal. By subsequent *feeble-minded* wives he had, however, children who were chiefly feeble-minded. [E. R. O. BULL. No. 1, p. 7.]

2. THE EPILEPTIC.

Case 4. A normal man married a woman who developed epilepsy at the climacteric. They had four children—1, ♀, is over 50 years old, normal; 2, ♀, a nurse, about 50 years old, normal; 3, ♀, 46 years old, normal, has a daughter of 13 years; 4, ♂, normal.

Case 5. The father was born in Germany 70 years ago, is very healthy, though excitable; he married a woman who began to have epileptic attacks at 45 years of age. Of their five children, one died in infancy of summer complaint; one was accidentally drowned at 30 years; the eldest is very healthy, although somewhat excitable, a fairly intelligent cement mason. Another is very rugged and has five living, healthy children. The youngest is a little delicate, married a strong woman, and has two normal children.

Case 6. A normal man married a woman who showed epileptic convulsions in middle life, and whose mind is now, at 87, quite gone. Of four surviving children, none are epileptic. The eldest son is

moderately successful and has six daughters, all well. The second son was suffocated by blowing out the gas. The youngest son was killed in a railroad accident. The youngest child, a daughter, is well married and has six children—none with signs of epilepsy. [REPORTS 34, p. 16.]

3. THE INSANE.

Case 7. A normal man marries a neuropathic woman. They have six children, all normal. [BULL. No. 3, p. 5.]

Case 8. A second, similar mating, produces six normal children. [BULL. No. 3, p. 6.]

Case 9. A normal man marries a woman who has hysteria. There were nine children, of whom four survived childhood—all were normal. [BULL. No. 5, Chart II.]

Case 10. A normal man marries a woman who develops hysterical spells. Of seven children, one is unknown; the others are normal. [BULL. No. 5, Chart V.]

Case 11. A man who is normal, except for alcoholism, marries a woman who develops manic-depressive insanity. There are two still-births, one infant death, and four children who grew up, and they are all normal. [BULL. No. 8, Chart III.]

Case 12. A normal man, one of a fraternity of eight, all normal, marries a woman who develops manic-depressive insanity. There are fourteen children, besides one miscarriage. Seven died early; the remaining seven are mentally normal, except that one is nervous. One of the normal sons married properly, and has three children who are all normal. But the nervous daughter married an insane man and has one insane child, one nervous, and one mentally strong. [BULL. No. 8, Chart V.]

4. DISCUSSION.

The foregoing illustrations are actual cases that happen to be at hand. They are not highly exceptional; they can be duplicated in any community. Had the twelve defective parents in these cases been denied parentage and actually been kept from reproduction, fifty children, all normal, except for one quarrelsome, one alcoholic and one nervous, would not have been born—at least as legitimate children.

But, it is urged, though the offspring of such matings are themselves normal, they will in turn have neuropathic progeny. This

assertion is not correct. They can have neuropathic offspring only if they marry persons who, like themselves, belong to a neuropathic strain.[1] The worst mating for them to make is with a cousin that belongs to this same weak strain. The proper mating is with a person in whose ancestry there is no trace of neuropathic ancestry. If the children's children were all equally careful to marry into strong strains, then only one-fourth of their children—the great-grandchildren of the neuropathic ancestor—would be capable, even if married to a neuropathic person, of having any neuropathic children. And if such a tainted child should marry a similarly tainted person, only one in four of the issue would be neuropathic. If the sixteen cousins shown in Fig. A, Gen. III, all married, if marriage took place without regard to the neuropathic taint of the consort; if each had four children, and if it is true (as Dr. Rosanoff, 1911, concludes) that one-fourth of our population carries germ cells defective in neural strength, then there would be an expectation of sixty-four children, and only two of them neuropathic (Gen. IV), or almost the proportion now found in the population at large.

We see, then, that while, as a rule, it is undesirable that feeble-minded, epileptic, or insane persons should have children, a reason may arise why one of them should and, if only the matings be carefully made so that the immediate children of the neuropathic parent shall avoid marrying a consort with a neuropathic taint, there will be no neuropathic children or grandchildren, and hardly a greater chance of neuropathic great-grandchildren than though the marriage in question had not been made. Were the grandchildren also to avoid marrying a person with neuropathic taint their progeny would be *freer* than the population at large from neuropathic taint, and less liable, in random matings, to have neuropathic offspring.

What folly, then, is legislation that makes null and void any marriage of a manic-depressive and subjects to heavy penalties him who solemnizes it. A law that takes into account our present knowledge should recognize two principles:

First, the reproduction of the feeble-minded will not be, to an important degree, diminished by laws forbidding the issuing to them of marriage licenses. Most of them have weak sex-control. If it is easy and cheap to get married, they may do so; otherwise, they will

[1] That is, so far as the traits of the neuropathic person are inherited as a negative character. Fits of violent temper and eroticism are usually, if not always, inherited as positive traits and will reappear in at least half of the offspring if either parent possess these traits.

have children without getting married: And what is the use of declaring void a marriage between a pair who go right on producing children for the State to take care of? Secondly, while the union of a normal man and a feeble-minded woman usually does not take the form of marriage, yet the case may well arise in the future, as it has arisen in the past, where a mentally vigorous man wishes to marry a socially attractive and beautiful, though defective, woman. Such a marriage may be, from the standpoint of Eugenics, as from any social viewpoint, quite permissible.

In the case of an epileptic person, there are numerous social if not eugenic reasons why, if the convulsions be of the *grand mal* type, the unfortunates should not have children and should not be given license to marry. But if a person who is subject to so-called psychic epilepsy marries one whose family history shows no nervous taint or feeble-mindedness, there is, so far as we know, no danger of producing epileptic children; and if the children take pains to avoid marrying into neurotic strains the grandchildren should not be nervous nor be more apt to procreate children who will require State care than other persons. And there may arise cases where the marriage of an epileptic to a person of mentally untainted stock would be, on the whole, desirable. Legislation against the marriage of "epileptics," like that against the marriage of the feeble-minded, is largely futile and, on the whole, injurious, since it directs attention away from the proper action. The proper action in the case of imbeciles or the gross epileptics who wish to marry is not to decline to give them a marriage license, but to place them in an institution under State care during at least the entire reproductive period. No cheap device of a *law* against marriage will take the place of compulsory segregation of gross defectives.

Legislation against marriages of the insane must be ineffective, first, because in most cases the onset of the trouble comes after marriage and, indeed, after children are born. Second, the word "insane" includes a great variety of conditions of very varied importance, from both the contractual and the eugenical aspects of marriage. There are periodic psychoses, in certain phases of which a person is as competent to make a contract as anybody; and there are other forms of insanity (such as the traumatic) where the eugenical significance is slight. The offspring are not more likely to be defective than the offspring of persons taken at random. Important legislation should not be couched in loose terms.

If present legislation is inadequate, what legislation is suggested? First of all, no legislative restrictions as to marriage of imbecile, epileptic and insane persons have any great value. Socially dangerous imbeciles (including morons) should not be at large, in any case. They should be in custodial care throughout the reproductive period. Legislation as a means of preventing their procreation is worse than useless.

Second, any legislation directed toward the insane and epileptic should take account of kinds and degrees. It is futile to legislate against the marriage of progressed cases of dementia precox or "constitutional inferiority" or other types of youthful degeneration for the same reason as in the case of imbeciles. In all the lighter cases of the disorder the prohibition is, as pointed out above, of doubtful benefit.

On the other hand, there are persons who appear normal and have never shown any marked psychosis, whose marriage is, from a eugenical viewpoint, dangerous to society. Such are the children of a person afflicted with Huntington's Chorea. In the long run, half of the children of such a parent will, if they live long enough, become choreic and, if they have children, will transmit the curse to half of them. No permit to marry should be issued even to a normal-appearing person either of whose parents suffer from Huntington's Chorea, unless (possibly) a physician of the State Eugenics Board shall certify that such person is probably untainted.

A few States, notably Michigan and Utah, have legislation with reference to venereal diseases. Thus the Michigan law of 1899 reads: "No * * * person who has been afflicted with syphilis or gonorrhea and has not been cured of the same shall be capable of contracting marriage." Such illegal marriage is a felony and is punished by a fine of from $500 to $1,000, or imprisonment for not more than five years, or by both at the discretion of the court. The husband is a witness against the wife in such a case and the wife against the husband, whether they consent or not. The attending physician is compelled to testify to the facts found by him. The Utah law provides: "Marriages are prohibited and declared void with a * * * person afflicted with syphilis or gonorrhea that is uncured." Neither law specifically provides for a physician's certificate that the candidates are not so affected. This defect renders the law practically void in preventing the marriage of infected persons. What the law provides

for is the annulment of marriage after the mischief of infection has been done. The physician's certificate is, in the case of possible venereal disease, an all-important prerequisite of a marriage license.

II. LAWS LIMITING CONSANGUINITY IN MARRIAGE

Table II gives a summary of State laws limiting consanguinity in marriage.

The first thing that strikes the biologist in examining Table II is that a large part of the prohibitions have nothing to do with "blood" at all. Why they exist is a mystery to him. Just why is it important to prohibit the marriage of a person with his or her (deceased) consort's step-child, or with the consort's grandchild, derived from an earlier marriage? In some cases it looks as though the drafter of the law was making a point of outdoing other States in the classes of prohibitions. Thus in West Virginia, the marriage of a woman with the husband of her brother's deceased daughter is forbidden, although in this State a man may marry his brother's widow. These prohibitions belong to the same class as the deceased wife's sister law of England, now happily abolished. It would probably conduce to morals as well as to respect for law if all this rubbish of non-biological limitations to marriage—a heritage from the Jewish and the Roman laws, which knew not biology—were cleaned from off the statute books of all the States.

The limitations as to consanguineous marriages have, on the other hand, great biological interest. These limitations exclude from intermarriage: 1. *Sibs* (*i. e.* full brothers and sisters) in all States, and half sibs in most States. 2. *Parent and child* in all States, and parent and grandchild in all States, except Pennsylvania. 3. *Child and parent's sibs* (*i. e.,* niece and uncle, nephew and aunt). This prohibition is almost, but not quite, universal, but the law in four States does not exclude marriages of these relatives. 4. *First cousins.* Marriages of this type are prohibited in over a third of the States, and tacitly or specifically permitted in the others. 5. Other blood relatives are occasionally prohibited from marrying. Thus, second cousins in Oklahoma, and a child and his or her parents' half sibs in Alabama, Minnesota, New Jersey, Texas and other States.

Let us consider the biological significance of marriage within the four degrees most commonly prohibited.

TABLE II

SUMMARY OF LAWS LIMITING CLOSENESS OF RELATIONSHIP IN MARRIAGE

x, Degree that is illegal.

	Consanguinity.									Affinity.							Penalty.				
	Sibs.	Half sibs.	Child and parent.	Grandchild and grandparent.	Child and parent's sib.	Child and parent's half sib.	First cousins.	Child and grandparent's sibs.	First cousin once removed.	Child and step-parent.	Child and parent's sib's consort.	Child and parent's step-parent.	Person and consort's grandparent.	Person and consort's parent.	Person and consort's step-child.	Person and sib's child's consort.	Marriage void without decree.	Marriage voidable.	Imprisonment.	Fine.	Progeny.
Alabama	x	x	x	x	x	x	..	..	..	x	x	x	..	x	..	..	..	x	x	....	.....
Alaska	x	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	....	....	.....
Arizona	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	x	....	.....
Arkansas	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	....	x	.....
California	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	x	x	....	.....
Colorado	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	x	x	.....
Connecticut	x	..	x	x	x	..	..	..	..	x	..	..	..	..	..	..	..	..	x	....	.....
Delaware	x	..	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	..	x	x	.....
District of Columbia	x	x	x	x	x	x	..	..	..	x	x	x	x	..	..	..	x	..	x	....	.....
Florida	x	..	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	..	x	....	.....
Georgia	x	x	x	x	x	..	..	..	..	x	..	x	x	x	..	..	..	..	x	....	.....
Hawaii	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	.....
Idaho	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	x	..	x	....	.....
Illinois	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	x	....	.....
Indiana	x	x	x	x	x	..	x	..	..	x	..	..	..	..	..	..	..	..	x	....	.....
Indian Territory	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	.....
Iowa	x	..	x	..	x	..	x	..	..	x	..	x	..	x	..	..	..	..	x	....	.....
Kansas	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	x	x	.....
Kentucky	x	..	x	x	..	..	..	..	..	x	..	x	x	x	..	..	..	..	x	....	.....
Louisiana	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	x	....	.....
Maine	x	..	x	x	x	..	..	..	..	x	..	x	x	x	..	..	..	..	x	....	.....
Maryland	x	..	x	x	x	..	..	..	..	x	..	x	x	x	..	..	..	..	....	(1) x	.....
Massachusetts	x	..	x	x	x	..	..	..	..	x	..	x	x	x	..	..	x	..	x	....	.....
Michigan	x	..	x	x	x	..	..	..	..	x	..	x	x	x	..	..	x	..	x	....	.....
Minnesota	x	x	x	x	x	x	x	x	..	..	..	..	..	..	..	..	x	..	x	....	.....
Mississippi	x	x	x	x	x	..	..	..	..	x	..	x	..	x	..	..	..	..	x	x	.....
Missouri	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	....	....	.....
Montana	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	x	..	x	....	.....

(1) Or banishment from the state forever.

TABLE II—*Continued*

SUMMARY OF LAWS LIMITING CLOSENESS OF RELATIONSHIP IN MARRIAGE

x, Degree that is illegal.

	Consanguinity.									Affinity.							Penalty.				
	Sibs.	Half sibs.	Child and parent.	Grandchild and grandparent.	Child and parent's sib.	Child and parent's half sib.	First cousins.	Child and grandparent's sibs.	First cousin once removed.	Child and step-parent.	Child and parent's sib's consort.	Child and parent's step-parent.	Person and consort's grandparent.	Person and consort's parent.	Person and consort's step-child.	Person and sib's child's consort.	Marriage void without decree.	Marriage voidable.	Imprisonment.	Fine.	Progeny.
Nebraska	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	....	....	.....
Nevada	x	x	x	x	x	..	x	..	..	x	..	..	..	..	..	..	..	..	x	....	.....
New Hampshire	x	..	x	x	x	..	x	..	..	x	..	..	x	x	..	..	x	..	x	x	Illeg.
New Jersey	x	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	....	....	.....
New Mexico	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	..	x	x	.....
New York	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	..	x	x	.....
North Carolina	x	x	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	x	....	.....
North Dakota	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	.....
Ohio	x	x	x	x	x	?	x	..	?	..	..	..	..	..	..	..	..	..	x	....	.....
Oklahoma	x	x	x	x	..	x	x	..	x	x	..	..	..	..	..	..	..	..	x	x	.....
Oregon	x	x	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	..	x	x	.....
Pennsylvania	x	..	x	..	x	..	x	..	..	x	..	x	..	x	..	..	..	..	(2) x	x	.....
Porto Rico (3)	x	x	x	x	x	x	x	x	..	..	..	x	x	x	..	..	..	..	....	....	.....
Rhode Island (4)	x	..	x	x	x	..	..	..	..	x	..	x	x	x	..	..	..	..	....	....	Illeg.
South Carolina	x	..	x	x	..	..	..	..	..	x	..	x	x	x	..	..	..	..	x	x	.....
South Dakota	x	x	x	x	x	..	x	..	x	..	..	..	..	..	..	..	x	..	x	....	.....
Tennessee	..	..	x	x	x	..	..	..	..	x	..	x	x	x	x	..	..	..	x	....	.....
Texas	x	x	x	x	x	x	..	..	..	x	..	x	..	x	..	..	..	..	x	....	.....
Utah	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	x	..	x	....	.....
Vermont	x	..	x	x	x	..	..	..	..	x	..	x	x	x	..	..	x	..	x	x	.....
Virginia	x	x	x	x	x	..	..	..	..	x	..	x	..	x	x	..	..	..	x	....	.....
Washington	x	x	x	x	x	x	x	..	..	x	..	..	x	x	..	..	..	..	x	....	.....
West Virginia	x	x	x	x	x	..	..	..	..	x	x	x	..	x	x	x	..	..	x	x	.....
Wisconsin	x	x	x	x	x	x	..	..	..	..	..	..	..	..	..	..	x	..	x	....	.....
Wyoming	x	x	x	x	x	..	x	..	..	..	..	..	..	..	..	..	..	..	x	....	.....

(2) Solitary confinement.

(3) Marriage is illegal between adopted child and adopter, and between adopter and surviving child or wife of adopted, or between legitimate descendants of adopter and adopted.

(4) Except among the Jews, whom these laws do not effect.

1. Sibs.

The following histories of incest are from the files of the Eugenics Record Office:

Case 14. Hannah, about whom nothing is known (except that she has the reputation of not having good sense), had by her brother William, of whom also nothing is known (except that he was a painter), a son who was not examined by the field worker, but of whom someone said he is "very feeble-minded," while others have said, he is "not so bad, considering." He is doing various odd jobs for the railroad. He is probably, like his mother, imperfectly developed mentally. [Reports 6: 287.]

Case 15. The father is feeble-minded—son of an alcoholic criminal. By his sister, who is mentally defective, he had a daughter, who is epileptic, alcoholic, criminalistic and without sex control. [No. 3162, Skill.]

2. Father and Daughter.

While this mating has been frequently recorded, it is usually infertile owing to age or disease of the father. The following cases may be cited:

Case 16. The father was disorderly, epileptic in youth, and defective mentally. He had, also, hare-lip. The daughter is imbecile, is able to do only the simplest tasks, and remembers none of her past. Their child was a daughter who weighed only four or five pounds, had a hare-lip like the father, and lived only nine hours. [Reports, 14: 195.]

Case 17. This continues Case 15. The epileptic daughter had by her own feeble-minded father (the brother of her mother) four children. One epileptic daughter, one feeble-minded son who did not grow to manhood, one feeble-minded woman of the streets who spends much of her time in jail, and one anencephalic monster who died soon after birth. [No. 3162, Skill.]

Case 18. In this case the father is not described; his daughter is a suspicious, irascible person, whose mentality has not been gauged. Their child, now about 18 years old, seems to have fair intelligence and is physically well developed. The stock is less feeble-minded in this case than in cases 14-17, and the product is not bad.

Case 19. B. F., *b.* 1851, a maker of boats and oars, had four children by his daughter, a young woman who has been healthy until

recently, when her thyroid has begun to swell and neuralgia has developed. She is intelligent, and is a good housekeeper and dressmaker. The children are as follows: (1) M., 20 years old, an intelligent, active boy, who fishes with his mother's youngest brothers. (2) A., 15 years old, a girl in the 5th or 6th grade at school, well and strong, a good seamstress. (3) A. M., 11 years, a healthy girl, whom the Binet test shows two years retarded, has catarrhal deafness and looks stupid. (4) L., 6 years old, normal by Binet test; did not walk until 4 years old, and legs not strong; with occasional choreiform movements; has adenoids. [RECORDS, Sturg.]

Case 20. A very neurotic girl, by her father, of whom nothing is known, had an idiot child. [REPORTS, 26: 36.]

Case 21. A girl who was feeble-minded and epileptic, and whose mother was feeble-minded, had, by her alcoholic and probably feeble-minded father, a child who was feeble-minded. [REPORTS, 26: 36.]

Case 22. M. A. is a woman of about forty-five, and seems to be normal in every way except that she has a well-developed red beard. She has a daughter of 18 years, of fair intelligence and well developed physically. It is believed that the father of this child was the father of M. A. herself. Nothing is known of him. [E. R. O. Files, 0623.]

3. UNCLE AND NIECE.

If sibs had exactly the same heritage, this mating would be just as close as that between father and daughter; but, on account of the segregation of traits within the fraternity, the girl's uncle is likely to be of more or less different make-up from her father, hence this mating is, from the viewpoint of heredity, somewhat less close than the former class.

Case 23. J. S. had, illegitimately, by his niece, I. M. W., a child, L. W. The child was sexually immoral and died of syphilis early in her married life.

Case 24. C., an alcoholic, illiterate, immoral and shiftless girl, whose father was alcoholic, illiterate, vicious and shiftless, had five children by her uncle (brother of her father), an alcoholic, illiterate, vicious and shiftless man. Of these children, the first, A., is reported as sub-normal, illiterate and very immoral before her marriage; she has sixteen children. The second, Mary, is sub-normal. The third, Emma, was alcoholic, syphilitic, immoral, illiterate and shiftless; she deserted her family and ran away with a colored man. The fourth died at 14 years of measles. The fifth, M., a girl. was alcoholic,

syphilitic, immoral, illiterate and shiftless; deserted her family to run away with a colored man.

Case 25. P., a girl said to be normal in every way, married her uncle, an albino who had two albino brothers and an albino sister, besides two sisters who were unaffected. The girl's mother was one of these unaffected sisters. The result of this union was eight children, none of whom were albinos. It is interesting to note, however, that one of these children married a step cousin and had nine children, of whom six were albinos. Had the girl, P., herself been an albino, she would have had, by her uncle, only albinic children. Evidently her germ-cells had escaped being even tainted with albinism. Of the mental condition of these progeny of uncle and niece nothing is known.

4. Great-Uncle and Niece.

Case 26. Emily R., when 13 years old, was married, by her father, for a monetary consideration, to her father's father's brother. The latter was then 51 years of age. They had three children, of whom the eldest was sexually immoral, and died of paresis at 42 years. One boy was "not bright" and was drowned at 18 years. The youngest, a boy, died at 2 years.

5. First Cousin.

Case 27. The father was a farmer and stone-mason who died at 56 years of lead poisoning. The mother, his cousin, nearly died of measles in middle age, and did die of apoplexy at 63 years. They had eight children, of whom two died in infancy. Of the remaining six: (1) ♂, has been troubled with diarrhœa; (2) ♀, was an exceptionally good housewife, died at 52 years of abdominal tumor; (3) ♂, died of pneumonia; (4) ♂, has much mechanical ability; (5) ♂, died of Bright's disease; and (6) ♀, died of tumor of the breast.

Case 28. An ambitious, public-spirited man, troubled a little with his eyes, and who later died of Bright's disease, married his cousin, a poetical, tender-hearted woman, afflicted with migraine and rickets, who died at 68 of gall stones. They had twelve children, five of whom died in early infancy, pneumonia being the cause in three cases. Of the remaining seven, the eldest had female trouble with frequent premature births. Her daughters inherited this weak condition of the uterus. The eldest son had good business ability, and died of

pneumonia. The next son had a great memory, and died of typhoid fever. Then came two normal children and a son who was nervous, very witty, had literary talent, was near-sighted and had kidney trouble. Finally, the youngest daughter also died of pneumonia. [VAU-2.]

Case 29. A naval officer, graduate of Cornell, of marked intelligence and inventive capacity, always quite healthy, married his cousin, of whom little is known, and had five healthy children. [QUI-1.]

Case 30. The father was a lawyer, who committed suicide. His wife, who was his first cousin, lived to a good old age. There were four children: (1) The elder son had migraine and rheumatism, and of his three sons one was feeble-minded. The younger son (2), and elder daughter (3), were near-sighted, and the younger daughter (4), died in child-birth. [FEC-1.]

6. DISCUSSION OF COUSIN MARRIAGES.

(*a*) *In Strong Stock.* No fact is clearer than that the marriage of first cousins is not necessarily and of itself injurious to the offspring. Not only have we the experience of animal breeders, who habitually use such close matings, but the evidence from man is conclusive. Perhaps the most striking case we have of good results from first cousin marriage is that of the Darwin family (Case 31). Charles Darwin was the son of Dr. Robert W. Darwin, a sturdy physician who lived to the age of 83 years, and of Susannah, daughter of Josiah Wedgewood, the potter of Etruria; she died 32 years before her husband. Charles Darwin married his first cousin, Emma Wedgewood, like himself a grand child of Josiah Wedgewood. Sweetness of disposition is a Wedgewood trait. It was marked in Charles Darwin and in such of his children as I have known. There were two daughters and five sons: William, a banker, the financial head of the family; Sir George Howard, a well-known mathematician, professor at Cambridge, who has recently died; Sir Francis, formerly professor of botany at Cambridge; Major Leonard, who takes a keen interest, and actively participates, in social movements; and Horace, civil engineer and president of the Cambridge Scientific Instrument Company. It is clear that the cousin marriage has produced a progeny of far more than ordinary capacity, of good vitality, and without evident defects. The marriage of Charles Darwin and Emma Wedgewood would have been illegal and void, and their children pronounced illegitimate in Illinois, Indiana, Iowa, Kansas, Missouri, Nebraska, New

Hampshire, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington, Wyoming and other States!

But, it may be said, this was a wholly exceptional case, and the law cannot make allowances for all exceptions. In reply to this it is to be said that a study of our best families of Boston, Hartford, Virginia, and elsewhere, shows that cousin matings are not uncommon in our best stock, but, on the contrary, were and are very common. Let us examine a few examples:

Case 32. Simon Wolcott, a selectman of Windsor, Connecticut, had by Marian Pitkin a son, Roger Wolcott, *b.* Windsor, 1679, mayor and later governor of Connecticut. Simon's sister, Mary Wolcott, married Job Drake, and their daughter, Sarah Drake, married her *first cousin,* Roger Wolcott, aforesaid. From this union came Roger Wolcott, Jr., a judge of the Superior Court; Oliver Wolcott, a signer of the Declaration of Independence, and governor of Connecticut; Erastus Wolcott, a justice of the Supreme Court of Connecticut, and a speaker of the Connecticut House. A sister of these men, Ursula, married her second cousin once removed, Matthew Griswold, a governor of Connecticut, and had a son, Roger Griswold, also governor of Connecticut. All of the children, including Roger, Oliver, Erastus, Ursula, including a "signer" and governor, two justices of the Superior Court, and the wife and mother of governors, would have been bastards in over twenty States of the Union.

Case 33. Jonathan Edwards had a daughter Mary who married Maj. Timothy Dwight, and a daughter Susanna who married Hon. Eleazer Porter, a graduate of Yale, justice of the peace and judge of probate. Fidelia, daughter of Timothy and Mary (Edwards) Dwight, married her first cousin, Jonathan Edwards Porter (son of Eleazor and Susanna), a member of the Massachusetts Legislature. They had five children: Julia Ann, of brilliant intellect, who married Rev. J. D. Wickham, tutor at Yale and later principal of educational academies; Timothy Dwight, M. D., proprietor and principal of Washington Institute and other schools, a man of literary tastes and capacity; Theodore Woolsey, a teacher all his life; and two sons who died at birth.

Case 34. Hannah Cranch married William Bond, a clock-maker and silversmith, and they had a son, William C. Bond, born in Maine, 1789, an astronomer who discovered the eighth satellite of Saturn and was director of the Harvard Observatory. He married Salina Cranch, his first cousin, and had George P. Bond, professor of astronomy at

Harvard, inventor of the chronograph, discoverer of the dusky rings of Saturn, and author of astronomical monographs. A brother, who died early, aided his father in his researches and was full of promise.

Case 35. John Lowell, LL.D., (*b.* 1769) was a noted writer and educator of the time, successful lawyer, man of science and promoter of hospitals and literary and scientific institutions. He was the son of the Hon. and Judge John Lowell (*b.* 1743, the grandfather of James Russell Lowell, and himself a noted jurist, statesman, philanthropist and scholar), by his first wife, Sarah Higginson, of the best New England stock. By his wife, Rebecca Amory, John Lowell had a son, the Hon. John Amory Lowell, LL.D., Fellow of Harvard for forty years, a successful merchant, honored scientist and promoter of literary and benevolent enterprises. He was the first trustee and director of the Lowell Institute of Boston. He married his *half cousin,* Susan Cabot Lowell. She was the daughter of Francis Cabot Lowell, for whom the city of Lowell, Massachusettts, was named. He introduced and developed the manufacture of cotton in the United States. He also was the son of the Hon. and Judge John Lowell (1743), but by a different wife, of another and related family of first rank. The wife of Francis Cabot Lowell was Hannah Jackson, of a notable fraternity and parentage.

The result of this Lowell cousin mating was two children, of whom the first was Susan Cabot Lowell, who married William Sohier, a lawyer of Boston. By him she had six excellent children, among them being Hon. William Davies Sohier, lawyer, legislator and journalist, and a daughter who became the wife of Elliot Channing Clarke. The other child of the cousin marriage was Judge John Lowell, *b.* 1824, who was honored with the LL.D. degree by both Harvard and Williams. He was for twenty years judge of the United States Circuit Court, and an authority upon the subject of bankruptcy, upon which he wrote much, and a member of various literary and scientific societies.

Case 36. Francis Cabot Lowell, *b.* 1803, graduate of Harvard (brother of Susan Cabot Lowell, who married her cousin in Case 35 above), also married his half cousin, Mary Lowell Gardner. She was the granddaughter of Hon. and Judge John Lowell by a third wife, also of best New England stock. Mary L. Gardner's father was Samuel Pickering Gardner, a successful Boston merchant of good family. From this union there were five children: The first died at three years; the second was a son who was graduated from Harvard and

married into the Parker family; the third was the wife of Dr. Algernon Coolidge of Boston, a descendant of Thomas Jefferson; the fourth, a girl, never married; the fifth, a son, who was graduated from Harvard and married the daughter of the poet, Sam Griswold Goodrich, or "Peter Parley" as he was known to his readers.

Case 37. A successful and intelligent farmer and pioneer of normal stock, having a cataract (not congenital) on one eye, married his *first cousin,* a woman throughout her life considered very well balanced mentally, except for an attack of nervous prostration at the climacteric. She had no eye trouble herself, nor did any of her numerous sibs, except one sister, who had rather weak eyes. Both of these cousins were slightly below the average height; but all their children were of average height or over, with the exception of one son, who was of about the same height as his father, but heavier. Both parents had tall relatives; both lived well into their seventies. From this union came thirteen children: (1) a girl, died at 16 years; (2, 3) the next two died in infancy; (4) a girl, died at 22 years; (5, 6) two sons, died in infancy; (7) a boy, always healthy, married and had a large family of healthy, normal children; (8) a normal, healthy woman, with large family of normal children; (9) a healthy, normal woman, with three children, all normal; (10) a successful business man of decided ability; (11) a successful business man; (12) a successful business man, acquired cataract on one eye; and (13) a physician of large practice.

Case 38. A normal, healthy woman married her first cousin once removed, a successful and enterprising farmer and stock breeder. Both were from English families of good substantial character. The children of this mating number ten, all living, robustly healthy, bright, normal children. One has a slight eye trouble. The oldest, a girl in college, has won honors for scholarship.

(β) *In Weak Stock.* On the other hand, we have definite knowledge that certain undesirable conditions or traits are perpetuated in the strain by cousin marriages. Such are the biological hereditary "defects" or "recessive" characters. Whenever such a trait is found in only one family strain of a community, it will be perpetuated only under the condition that consanguineous marriages occur in that family. Some of these recessive traits are: imbecility, functional insanity, epilepsy, albinism, alcoholism, congenital deafness, non-resistance to cancer (probably), and non-resistance to tuberculosis (probably). The marriage of cousins in families with these defects is

highly dangerous. In a study of 56,000 deaf recorded by the United States Census, Bell (1906) has shown that among deaf children the *congenitally* deaf are relatively four times as common in cousin as in non-cousin marriages. Let us consider the results of consanguineous marriages in other tainted strains.

(a) Hereditary forms of *feeble-mindedness* are so common that they may appear in the offspring of two normal parents even when unrelated; but in any tainted family the chance of its appearing in the offspring of two normal parents is greatly increased if the parents are first cousins. In fact, on some oceanic islands and peninsulas, and in mountain valleys, where matings are prevailingly consanguineous, there exist highly inbred communities in which some of these traits have become very prevalent. Thus, in the Nam family, where nearly a quarter of the matings have been of this sort, nearly the entire population is feeble-minded. The feeble-mindedness is not the result of the inbreeding; the inbreeding is a consequence of the feeble-mindedness, and the trait of feeble-mindedness has been reproduced in the progeny. Let us examine some cases from the Nam family.

Case 39. A man married his first cousin and had five children, one of whom married his second cousin and had seven children. Five of these married, each consort being a cousin. The produce of each of these last five cases of cousin marriage is as follows:

Of the first, there were eleven children, of which number seven survived infancy; all were slow in movements, unambitious, unable to learn at school and, except one, reticent and shy. With perhaps one or two exceptions, all are alcoholic and licentious.

Of the second, six children, four surviving infancy. All slow, unambitious and, for the most part, alcoholic and licentious.

Of the third, nine children, four surviving infancy. The parents are both of better quality than in the last two cases. Two children are slow, indolent, unambitious, alcoholic and licentious; the other two are industrious, neat and temperate.

Of the fourth, seven children, of whom one died at three years, and another is only two years old. On the basis of school work all the others are feeble-minded, and two of these are already licentious.

Of the fifth, two children, both feeble-minded and licentious.

One sees the dire consequences of the inbreeding of such mental "scrubs."

Case 40. Two first cousins, whose common grandparents were feeble-minded, are below average mentality; the wife is a sex-offender.

The eldest child, Claude, is married, lives in a hovel and is without occupation, being mentally incapable of effective work. He is supported by his wife who takes in washing, but the children need public care. The next child, Herbert, at 22 years can read a little, but cannot learn to write; is clearly feeble-minded. The next helps a farmer, but is hardly superior to Herbert. George is in an institution for defectives. Of the daughter, nothing could be learned [E. R. O., 14-229.]

Cases of this sort might be multiplied indefinitely. No doubt it is the contemplation of such cases which has developed the idea that cousin marriages lead to bad results. The truth is, first, they are commonest in weak strains, and, second, they permit the appearance in large proportion of defective offspring in strains that are already defective.

(b) *Insanity* of the functional types will not appear in the children unless the defect is on both sides of the house; a condition most easily met in cousin marriages.

Case 41. Two first cousins, normal, but having insanity in the strain, marry. Of the four children that are known, one, at least, was insane. [E. R. O., 13:248.]

Case 42. A boy and a girl who are first cousins and belong to a strain with insanity and feeble-mindedness, have, illegitimately three children. The eldest is now insane, the next is a deformed imbecile, and the last a deformed idiot. [E. R. O., 13:234.]

These are merely illustrations of the general principle that even normal cousins of an insane strain frequently have one-fourth of their children insane.

(c) *Epilepsy* behaves like feeble-mindedness and insanity. The following cases are cited:

Case 43. A normal man marries his first cousin, who is subject to fainting spells (doubtless epileptoid in character). Of their four children, one is normal and three epileptic (two dying in infancy). [E. R. O., 18:81.]

Case 44. A normal man and woman, first cousins, belonging to the same neurotic strain, have nine children and three miscarriages. Two of the nine died in infancy. Of the seven others, one was unknown, two were normal, three neurotic, and one epileptic. [E. R. O., 2:86.]

Case 45. Two "normal" first cousins marry. Nothing is known of their families. Of eight children, two are unknown, two are normal, one died of cancer, one has tuberculosis, and two are epileptic. [E. R. O., 1:185.] There is every reason for believing that an epileptic tendency was in the (unknown) common blood of the cousins.

Not cousin marriage merely, but *the union of parents from the same epileptic-tainted strain,* is responsible for the epileptic children.

(d) *Albinism.* This condition is so rare that when a nest of affected persons occurs in any locality, and persons of the affected strain (though themselves pigmented) marry each other, the chance of having albinic children is considerable.

Case 46. In the Ramapo albinos we have one case of a first cousin marriage between two pigmented parents, which produced one albinic child in a fraternity of three persons. Two other marriages of more distant cousins produced six albinos in fifteen children.

Case 47. In the Cape Cod strain a marriage of first cousins, said to have been pigmented, produced five albinos out of eight children. This albinic strain is closely inbred, lives largely in one little valley, and is ostracized by those who are not "marked."

Case 48. In the Long Island strain of albinos there is one case of the marriage of two pigmented second cousins resulting in an albino child. All other matings which produced albinos were in the same restricted locality, a highly inbred community, and, though the relationship was not demonstrated, there can be little doubt that they were all consanguineous matings. It is, however, not *cousin marriage,* as such, that is responsible for the result, but rather the presence of the same unit defect (albinism) in both parental germcells.

(e) *Hare-lip.* Although it has not been established that hare-lip is determined by the absence of something from the germplasm, yet this seems probable because of the frequency with which consanguineous parents with normal lips produce offspring with hare-lip. Two cases are given as illustrations:

Case 49. Two first cousins, of whose remoter ancestry nothing is known, marry. Of the surviving children, two have hare-lip [H. P. fam.]

Case 50. Two brothers marry two normal sisters, their first cousins, who have four brothers with hare-lip. From one mating came four children, one having hare-lip; from the other mating came five children, none having the hare-lip. [B. B. N. fam.]

Case 51. A man whose mother had hare-lip marries his first cousin ,and of three surviving children, none have hare-lip. A brother of this man, also normal, married a normal woman of a hare-lipped strain (though not a cousin) and two of their children have hare-lip. This case illustrates the principle that it is not the cousin marriage, but the union of two germcells that carry the defect that produces the hare-lip. In this case the cousins probably did not *both* carry defective germcells; but the pair who, while not cousins, were both of hare-lipped strain, did both carry tainted germcells. [H. fam.]

(γ) *General Conclusions.* The reason why cousin marriage sometimes produces defective progeny and sometimes that of the highest order of intellgence is very simple. Cousin marriage permits two persons with the same defect in the germcells to become the progenitors of offspring that get the normal condition from neither side of the house, and hence must show the family defect. On the other hand, cousin marriage may bring together a double dose of the special ability that characterizes a family. There is danger in cousin marriage whenever (as so frequently is the case) there is a marked family defect; but, on the other hand, in the absence of a marked family defect cousin marriage may perpetuate and even strengthen a desirable quality.

In view of the foregoing facts, what conclusion is to be drawn concerning the laws prohibiting consanguineous marriages and annulling them after they have been made? Since sound reasons and a strong public opinion exist against the marriage of brother and sister, parent and child, and even a person and his sib's child, these three classes of matings may well be prohibited, and any person who solemnizes such should be deprived of his office and heavily fined. Any persons cohabiting within these limits may well be placed under State care as long as may be thought best. As to marriages between first cousins, first cousins once removed, and second cousins, no license should be issued except upon certificate from the State Board of Eugenics, as hereinafter described. Unions more remote than second cousins should require no certificate, at least on the ground of the evil consequences of consanguinity.

III. MISCEGENATION

While no great ferment has been aroused by the declaration of the principles that close relatives and the mentally weak should not marry, and these subjects may be discussed anywhere freely on their merits;

TABLE III

LIMITS TO MARRIAGE BETWEEN RACES

	FORBIDDEN MARRIAGES.	STATUS OF MARRIAGE	MAXIMUM PENALTY.
ALABAMA	White person and Negro or *descendant* of a Negro to 3rd generation, inclusive, though one ancestor in each generation be white. Constitution forbids marriage of white person with Negro or descendant of Negro.		Imprisonment 2–7 yrs. for each party.
ARIZONA	Persons of Caucasian blood or their descendants with Negroes, Mongolians or their descendants.	Void	
ARKANSAS	Between a white and a Negro or mulatto.	Void	
CALIFORNIA	White person with Negro, mulatto, or Mongolian.	Void. No license to be issued.	
COLORADO	White person with Negro or mulatto, except in portion of state derived from Mexico.		Fine $500 or imprisonment, 2 yrs.
DELAWARE	White person with Negro or mulatto (as enrolled).	"Unlawful."	Fine $100 or imprisonment 30 days.
FLORIDA	White with a Negro ($\frac{1}{8}$ or more Negro blood). Constitution specifies persons of Negro descent to fourth generation, inclusive.	Null and void.	Imprisonment 10 yrs. or fine $1000.
GEORGIA	White persons with persons of African descent.	"Forever prohibited, null and void."	For officiating, fine, imprisonment 6 mo. and work in chain gang 12 mo.
IDAHO	White person with Negro or mulatto.	Illegal and void.	For solemnizing, fine $300 and imp. 3 mo.
INDIANA	White person with person having $\frac{1}{8}$ or more Negro blood.	Void.	Imprisonment 10 yrs. and fine $100.
KENTUCKY	White person with Negro or mulatto.	Prohibited and void.	Fine $5000

TABLE III—*Continued*

LIMITS TO MARRIAGE BETWEEN RACES

	FORBIDDEN MARRIAGES.	STATUS OF MARRIAGE	MAXIMUM PENALTY.
LOUISIANA	White person and person of color. Courts have held that marriage of white person with Negro or mulatto can never be valid.	Prohibited, null and void. Concubinage between white and Negro is a felony.	Imprisonment 1 yr.
MARYLAND	White person and Negro or descendant of a negro to 3rd generation inclusive. "Infamous crime."	Forever prohibited and void.	Imprisonment 10 yrs. Minister fined $100.
MISSISSIPPI	White person and Negro or mulatto, or one who has $\frac{1}{8}$ or more of Negro blood. White person and mongolian or person having $\frac{1}{8}$ or more of Mongolian blood. Constitution limits Negro in same way.	Unlawful and void.	Fine $500 and imprisonment 10 yrs.
MISSOURI	White person and Negro or Mongolian	Prohibited and void.	
MONTANA	White person and Negro (or in part negro) or Chinese or Japanese. Such marriages made elsewhere are null and void in this state.	Null and void.	For solemnizing, fine of $500, and imp. 1 mo. in County Jail.
NEBRASKA	White person and one having $\frac{1}{4}$ or more of Negro blood.	"Absolutely void."	
NEVADA	White person with one of Ethiopian, Malay, Mongolian or American Indian races.	Gross misdemeanor.	Imprisonment 2 yrs.
NORTH CAROLINA	White and Negro or Indian (or of such descent to the 3rd generation inclusive). Crotoan Indian and Negro (or of Negro descent to 3rd generation inclusive.) Constitution makes same prohibited for Negro.	Prohibited andvoid if so declared by a court.	
NORTH DAKOTA	(*a*) White and Negro (defined as person having $\frac{1}{8}$ or more of Negro blood). (*b*) Unlawful for such to live in adultery or fornication together or to live in same room.	"Unlawful.	(*a*) Fine $2000 and imprisonment 10 years. Same for issuing license or solemnizing. (*b*) Fine $500 and imprisonment 1 yr.

TABLE III—*Continued*

LIMITS TO MARRIAGE BETWEEN RACES

	FORBIDDEN MARRIAGES.	STATUS OF MARRIAGE	MAXIMUM PENALTY.
OKLAHOMA	Any person of African descent with any person not of African descent.		Fine $500 and imprisonment 5 yrs.
OREGON	White person and Negro or Mongolian, or any person having ¼ Negro or Mongolian blood. (The Criminal Law includes also Chinese and Kanaka, declares such marriage void, and provides penalty of imprisonment 3 mo. to 1 yr. For aiding or issuing license the penalty is the same plus a fine of $100 to $1000).	Void.	Fine $1000 or imprisonment 1 yr.
SOUTH CAROLINA	White to Indian, Negro or mulatto, or person having ⅛ or more of Negro blood. Constitution limits Negro in same way.	Unlawful and void.	Fine $500 and imprisonment 1 yr.
SOUTH DAKOTA	White with person of African race. (illicit cohabitation between such persons is a felony). (To issue license for such marriage is a misdemeanor).	"Null and void from the beginning."	Fine $1000 and imprisonment 10 yrs.
TENNESSEE	White with Negro or descendant of Negro to 3rd generation inclusive. Living together as man and wife prohibited. Constitution sets same limit.		Imprisonment 5 yrs.
TEXAS	Persons of European blood or their descendants with persons of African blood or their descendants (includes Negro with one parent white to third generation). Reservation that the person knowingly marries such person of different race.	Null and Void.	Imprisonment 5 yrs.
UTAH	White with Negro or Mongolian.	Void.	
VIRGINIA	White with person having ¼ or more of Negro blood.		Imprisonment 5 yrs. Official solemnizing — fine $200, of which informer gets half.
WEST VIRGINIA	White person with Negro.		Imprisonment 1 yr. Fine $100 Solemnizing — Fine $200.

NOTE: The statutes of Michigan expressly declare that the marriage of a Negro with a white person is valid.

with the subject of miscegenation the situation is different. Particularly in regions where miscegenation is taking place most commonly, discussion of this subject seems apt to arouse elemental passions. This is, of course, greatly to be regretted, for no subject can be so threatening to the social order that it may not be fully discussed to the advantage of society. If a conviction is grounded on reason, discussion cannot change it; if it is founded only on prejudice, then it should be examined in the light of reason.

A summary of the laws of different States in regard to miscegenation is given in Table III. Of the forty-eight States of the Union, twenty-nine have laws forbidding intermarriage between races. In the Southern States of Delaware, Maryland, Virginia, West Virginia, South Carolina, Georgia, Florida, Alabama, Louisiana, Kentucky, Tennessee, Arkansas, Oklahoma and Texas, together with the Northern States of Indiana, Idaho, Nebraska, North and South Dakota, marriages of whites is denied with Negroes. In Arizona, California, Mississippi, Missouri, Montana, Utah and Oregon, marriage with Mongolians also is prohibited. North Carolina prohibits marriage with Negro and Crotoan Indian blood, and Nevada with persons of the Ethiopian, Malay, Mongolian or American Indian races.

As miscegenation has taken place widely in the South, it is interesting to note "the amount of Negro blood" permitted for lawful marriage. The general rule is this: If the applicant for a marriage license had even only one great-grandparent who was a full-blooded Negro, he may not receive a license; but if that great-grandparent were a mulatto, and in all later generations matings took place (illegally, of course) with a white person, then the person in question is legally white and may marry a white person. Otherwise stated, the descendant of a Negro to the third generation inclusive, though one ancestor in each generation were pure white, is excluded; or persons having one-eighth or more of Negro blood are excluded from marrying a white person. In Nebraska and Virginia, the limit is set at one-fourth or more of Negro blood. The State of Georgia sets no limit, but declares "marriages between white persons and persons of African descent is forever prohibited; such marriages are null and void." Louisiana forbids the marriage of whites to "persons of color." In Jamaica, too, a person with less than one-eighth Negro blood becomes legally white.

The fact that the possession of less than one-eighth Negro blood is no longer a barrier to legal marriage is testimony to the belief

that the offspring of the mating of such a person with a "pure-bred Caucasian" may be expected to be as good, on the average, as of two pure whites. Indeed, as a result of such investigations as I have been able to make, based on quantitative studies of the skin-color of the children of two hundred fraternities and their parents, it may be said that a true octoroon, *i. e.,* a person with "one-eighth Negro blood," will, if married to a pure Caucasian, have no greater chance of giving issue to a quadroon-colored child than a "pure" Caucasian. The study just mentioned led to the conclusion that in a dark Negro there are four factors for black skin pigmentation. In a mulatto these are halved, so that there are only two factors for black. In the quadroon there is only one factor for black, while, among the children of a quadroon and a white, approximately one-half the number will have one factor for black, but in the other children there is no factor for black. Now these lighter children, since they carry no factor for Negro black, cannot have colored children by a white father. So far as skin color goes, therefore, a white-skinned person with one-eighth Negro blood might be given a license to marry a white person, without fear of reproducing "colored" children.

On the other hand, there are other Negro traits, concerning the inheritance of which there is much to be learned. It is known, for example, that the curvature of the hair which forms so close a curl (wooliness) in the Negro hair, becomes a more open curl in the mulatto and will appear as a waviness in some of the quadroons, and even be altogether absent in some of the octoroons. There is little doubt that nose-form, lip-form, and even the elements of intelligence and self-control will be inherited in similar fashion.

In the same way, if there are any desirable traits of the Negro—any points in which he is physically superior to the white man—these may be lost and the octoroon will tend to carry all of the physical inferiorities of the white man. Let us consider some of the striking traits of the Negro to see if any of them are superior to what are commonly found among the whites. We will take up the points of superiority that have been attributed to the Negro.

Of desirable emotional qualities may be mentioned good-nature, keen sense of humor, and native love of music. These traits are marked in the African Negro (Johnston, 1910, p. 23) and are still found in the full-blooded Negro of America. Then there is the dog-like fidelity of the pure-bred Negro—not universal, by any means, but characteristic of the race when treated kindly. The old South

knew what a precious trait that was and the South of today in certain sections still profits by it. It is quite in accordance with expectation that the head nurse in the colored ward of the Columbia (S. C.) State Hospital should have "all four grandparents born in Africa."

In certain physiological differences between the two races, the black has the advantage. It is frequently affirmed that the sense of sight is, on the average, sharper; at least, defects of vision and of hearing are much less frequent causes of rejection of recruits among the colored than among whites (DuBois, 1906, p. 67). Colored children have a sharper discrimination of differences in temperature than white children (DuBois, 1906, p. 51). Greater pressure on the skin is needed to produce pain (Woodworth, 1910, p. 171).

In resistance to certain diseases the blacks are superior to the whites. Thus there is a higher degree of immunity from yellow fever; and, though the blacks suffer and die from malaria, the death rate from this disease at the Panama Canal has been only one-third to one-fourth that of the whites.[5] A careful and extensive study by Fox (1908) shows that they enjoy relative immunity from sunburn, from ivy poisoning, and from acne. Skin cancers, psoriasis and various other skin diseases are rare to very rare with full-blooded Negroes. Dental caries is rare in pure Negroes, but frequent in mulattoes (Matas, 1896).

Other special resistances are revealed by the census reports of Maryland. In this State deaths from scarlet fever are relatively 15 times as common among whites as among blacks; erysipelas, 7 times; diabetes, 4 times; cirrhosis of the liver, 3.8 times; diphtheria, 3 times; embolism and thrombosis, also cyanosis, each 3 times; nervous disorders, and also malformations at birth, each about twice; and suicide, 7 times.

There is reason for concluding that diseases of the throat and nose, appendicitis, hemorrhoids and varices, hydrocephalus, cross-eye and other congenital deformities are less common among blacks than whites (Matas, 1896). Chorea and other minor affections of the nervous system are relatively rare, indicating a more stable nervous system (Clark, 1898).

Now, the foregoing are all racial characteristics that the black race have and the white race have not. The surest and quickest, if not the

[5] Annual Report Isthmian Canal Commission, 1907-08, p. 7.

only way, for the white man to get them is by hybridization with the black.[6]

But, it may well be urged, what a frightful load of non-social traits would be cast upon society by the presence of such hybrids? Let us enumerate some of these undesirable traits. A strong sex-instinct, without corresponding self-control (Fox, 1908, p. 13; Johnston, 1910, p. 22); a lack of appreciation of property distinctions (a capacity for which an African origin would hardly have contributed); a certain lack of genuineness—a tendency to pass off clever veneer for the real thing, due to inability or unwillingness to master fundamentals; a premature cessation of intellectual development. In respect to health, a relative lack of resistance to tuberculosis and pneumonia, and a liability to form keloid and uterine tumors (Fox, 1908, pp. 18, 19). All these unfortunate peculiarities doubtless have a hereditary basis, and a people may well stand appalled at a proposition to increase the proportion of these characteristics in the general population. Will not the evil of introducing the non-desirable traits overbalance the good of the strong traits? This question would require an affirmative answer, were it not that modern biological principles and agricultural practice point the way out of the difficulty.

Modern biology has shown that most racial characters are separately inheritable, *i. e.*, independently one of another. So long as the race is bred true the characters remain associated, so that we sometimes think of them as being necessarily associated. Thus, we usually think of black skin-pigment, "wooly" hair, peculiar odor, thick lips, lack of sex-restraint, premature cessation of intellectual development, etc., as belonging together just because they are so often found together. But by particular matings such traits may become completely dissociated. For example, I have measured the skin-color of the offspring of two mulattoes (in the strict sense) and calculated the correlation of such skin-color with the curliness of the hair. There is no correlation. A light-skinned child of two mulattoes is just as apt to have curly hair as straight, and the dark-skinned child is as likely to have straight hair as curly.

Secondly, it has been found that a combination of characters of any desired sort is obtained when two hybrids between the races having the desired traits are mated. Theoretically (and experience so far

[6] Read, in this connection, the bold and truthful chapter "Race Fusion," in Sir Sydney Olivier's "White Capital and Colored Labor," 1910.

as recorded is not in disagreement), the children of strict mulattoes (*i. e.,* children of a white and a pure-bred negro parent) might have the combination of characteristics shown in Table IV.

TABLE IV

	Skin color	Hair-form	Sex-control	Higher Educa-bility	Resis-tance to caries of the teeth	Immunity from fever	Immunity from cancer	Resis-tance to tuber-culosis
1	white	straight	strong	good	weak	weak	weak	strong
2	"	"	"	"	strong	strong	strong	"
3	"	"	weak	"	weak	weak	weak	weak
4	"	curly	"	"	strong	strong	strong	"
5	"	"	"	"	"	weak	weak	"
6	"	"	strong	"	"	"	"	"
7	"	"	"	poor	"	"	"	"
8	dark	straight	"	good	"	strong	strong	weak
9	"	"	"	"	"	"	"	strong
10	"	"	"	"	weak	"	weak	"
11	"	"	"	"	"	weak	"	"
12	"	curly	weak	"	strong	"	"	"
13	"	"	strong	"	"	"	"	"
14	"	"	weak	poor	weak	strong	"	weak
15	"	"	"	"	strong	"	strong	"

The fifteen combinations shown are merely illustrative. No. 1 is that of a typical Caucasian; No. 15, of a typical Negro. No. 2 is improved stock, being a combination of the best traits of the two. No. 4 has some of the best traits of the Negro, with curly or "wooly" hair. No. 9 has all the best social traits and resistance to disease of both stocks, combined with a dark skin. If that person did not carry weaknesses in a *recessive* condition he would make a better social unit, and better stock for the Causasian to breed with than many a feeble-minded, criminalistic, tubercular, cancer-susceptible, pure-bred

Caucasian. The skin-color is not of itself a matter of social moment—it should not be, at any rate. No. 13 is a better social unit than No. 3, even though the former has a dark skin, and curly, or even "wooly," hair.

The reasonable conclusion, then, would seem to be this: in legislating, forget skin color and concentrate attention upon matters of real importance to organized society. Prevent those without sex-control or educability or resistance to serious disease from reproducing their kind. This may be done by segregation during the reproductive period, or even, as a last resort, by sterilization. Encourage, on the other hand, such marriages as will produce effective offspring. The problem of the socially fit must be treated not as one of *color,* but as a problem of the spread of feeble-mindedness and physical weakness in organized society. From this point of view the social problem in the South is the same as that in the North, only it is larger, in that it involves a larger proportion of the whole population. However, if the demand for cheap labor in the North shall long continue to lure the weaklings of Europe to our Northern cities, the North will soon have on its hands as large a problem as the South has now—a problem which in its turn arose from the demand for cheap labor. Both sections alike must not be content merely to bow their heads before the oncoming storm, but must take positive measures to increase the density of socially desirable traits in the next generation—by education, segregation and sterilization; and by keeping out immigrants who belong to defective strains.

What legislation concerning miscegenation would square with biological knowledge? I would suggest the following outline:

No person having one-half part or more Negro blood shall be permitted to take a white person as spouse. Any person having less than half part, but not less than one-eighth part of Negro blood, shall not be given a license to marry a white person without a certificate from the State Eugenics Board.

IV. THE PHYSICIAN'S CERTIFICATE

The effective carrying out of the laws now on the statute books of all States, or of the much more simple laws herein suggested to replace those now on the books, requires that every candidate for a marriage license should be certified to as eligible for such marriage. Such certificate should be furnished by certain physicians officially employed by the State, and should give the ages of the applicants, whether

the applicants have or have ever had venereal disease; whether the applicant belongs to the class of feeble-minded, epileptic, insane or tubercular, or has a family history of feeble-mindedness, epilepsy, insanity of any form, tuberculosis, cancer, hare-lip, cleft-palate, alcoholism, or congenital deafness; also glaucoma, pre-senile cataract, retinitis pigmentosa, night blindness, hypospadias, cryptorchism, seriously defective fingers and toes of an inheritable type, or other serious "dominant" defects; also atrophy of the optic nerve, multiple sclerosis, ichthyosis, muscular atrophy, and hemophilia or other sex-limited characters; whether the applicants are related within the degree of second cousin, and if so, how; whether either applicant has Negro (or Indian, or Chinese) blood, and if so, where it came in.

V. STATE EUGENIC CONTROL

The principle that the State may and should control marriage matings is, as we have seen, recognized by all States. Whether the States are right in attempting to control marriage in any degree may be questioned by some, but I think all must admit that any law should be supplied with adequate machinery for its enforcement; if not, the non-enforcement of that law tends to bring all laws into disrepute.

The machinery for carrying out the intent of existing marriage laws is wholly inadequate. Chiefly because no adequate means are provided by which the licensing officer or solemnizing officer may know whether the applicants for a license or for the ceremony of marriage are legally qualified.

For the complete and adequate enforcement of the marriage laws of all States, three sets of officials are, it seems to me, necessary.

1. The State Eugenics Board.
2. The State official physicians, who shall also issue marriage licenses.
3. The field workers.

1. *The State Eugenics Board.*

This body, which should comprise a trained biologist, a general practicing physician of experience, and a general practitioner of law of broad experience, should devote its entire time to its duties. It should appoint the State official physicians and the field workers, and direct the administrative office and records of the Board. To it should be referred for decision all questions of the granting of licenses in cases where special consideration is clearly required. The vast

majority of marriages in any State will not be considered by a board. If 10 per cent. were, that would mean for New York State about 10,000, or 30 a working day; for Ohio, about 5,000; for Kansas and Virginia, about 1,700 per year each.

2. *The Official Physicians of the State.*

These should be designated by the Eugenics Board from among the general practicing physicians of each community. Since only about 16 persons (8 pairs) are married each year per thousand of the population, and since a physician could consider on the average, say, two a week without greatly interfering with his other engagements, one official physician could certainly take care of a population of 10,000 and, in large cities, the proportion could be increased to one in 25,000 or even 50,000 of the population. In a State like New York, with 9,113,000 inhabitants, about 500 official physicians would be required, those in the largest cities giving their whole time to the work of the Eugenics Board. The official physician should receive applications for licenses to marry; he should direct field workers to report on the family histories of the applicants with respect to the points covered by the law; he should, where the law requires a certificate of health, examine and certify such of the applicants as are of the same sex as the official physician, and secure a report upon the physical condition of the other applicant from a physician of the same sex as said applicant. If the findings of the field workers and those of the physical examination are both favorable, the license shall be furnished forthwith. If either or both the family history and the physical examination are such that there may be reasonable doubt as to the quality of the offspring, the case, with findings, must be laid before the Eugenics Board. If it is clear that the license cannot be granted legally, the application is denied forthwith and the applicants are fully instructed as to the reasons why the license cannot be granted; particularly the danger to progeny if the marriage were consummated. A written statement of the reasons for refusing the license is to be sent to the parent or guardian of each of the applicants. Appeal may be made to the Eugenics Board. In case the application is referred to the Eugenics Board and the reply from the Board is favorable, the license is granted forthwith; but in case it is unfavorable, the applicants and their guardians shall be instructed as above.

3. *The Field Workers.*

These shall be appointed by the Board. They shall, where necessary, and under the orders of the official physician to whom they are assigned, visit the homes of the two applicants for each license, and inquire into and report upon the existence in the family of the undesirable mental and physical conditions which the law seeks to eliminate from the race; they shall build up an index to the occurrence in the population of those traits of which the law takes cognizance, in order that, the facts being ascertained, the families concerned may be saved needless inconvenience. Duplicates of such index should be sent to the office of the State Board of Eugenics, and a third set may be deposited with a national and international depository of eugenical data, like the Eugenics Record Office.

The work of the State Eugenics Bureau and its officers may be illustrated by an example. A young man and a young woman present themselves (with an application for a marriage license) to a State physician. If the law requires a medical certificate, he examines the young man and requires from the young woman a report of examination by a reputable woman physician. He examines his files for data concerning the family histories of the applicants, so far as they bear on the traits of which the law takes cognizance. If he finds insufficient data he calls for a report from the field worker within three days. If personal and family histories are satisfactory, he issues the license forthwith to the applicants. If, on the contrary, the young man be found to be suffering from gonorrhea, the application is forthwith denied. If the field worker reports that the father of the young man and the mother of the young woman were brother and sister, and both were victims of manic-depressive insanity in a bad form, the application is likewise denied, with a full explanation of the reasons therefore. But if the young man have an epileptic brother or sister and no neurosis appear in the young woman, who is a second cousin of the young man, and if the family history is otherwise such that the physician is doubtful as to the decision he should render, the matter is referred by him to the State Board, who, after examining all the papers in the case and by the use of its own index to families of the State, renders a decision with the least possible delay.

For those persons who, despite a denial of marriage by the State, cohabit and have a child, the penalty should be sterilization of the male. And the father should be obliged to support the mother and

child during their periods of dependency. An official physician who has not exercised reasonable judgment in issuing licenses is to be deprived of his office and rendered unable thereafter to hold public office.

With the Eugenics Board should be left the execution of all laws limiting procreation, both inside the marital relation and outside. It is probable that the expenses of the Board, physicians and field workers could be met by the license fee of an amount that would not be prohibitive. Thus a fee of ten dollars would bring an income of $1,000,000 to the State of New York, and this would probably meet a large share of the expenses of the undertaking.

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Appendix

DIGEST OF STATE LAWS LIMITING MARRIAGE SELECTION (APRIL 1913).

The starting point of this digest has been certain tables prepared by W. L. Snyder and published in "The Geography of Marriage," 1889.

These tables have been checked by reference to the latest statute books of the States, and changes due to recent laws have been incorporated. But in every legislative year changes are made in one State or another in these marriage laws.

To make clear the terms of "degrees of consanguinity" employed, a diagram, taken from Webster's New International Dictionary, is reproduced here, also a statement of the Levitical Law of consanguinity and affinity in marriage, traces of which are found even in our twentieth century American laws.

LEVITICAL LAW OF CONSANGUINITY AND AFFINITY IN MARRIAGE

The law of marriage, given by Moses (Leviticus xviii), commands that no one shall marry anyone "that is near of kin to him." The man shall not marry his mother, his father's wife, his sister, the daughter of his mother, or of his father, his son's daughter or his daughter's daughter, his father's sister or his mother's sister, the wife of his father's brother, his son's wife, his brother's wife, his wife's mother, or her daughter, her brother's daughter, or her sister's daughter, or her sister while the wife is living. Special mention is made that no woman shall marry her father, or her father's brother. The lawgiver points out that the men of the land have done all these (and other) abominations, and adds, as the reason for the law: "That the land spue not you out also, when ye defile it, as it spued out the nations that were before you. For whosoever shall commit any of these abominations, even the souls that commit them shall be cut off from among their people."

FIG. B. Diagram showing degrees of consanguinity between a given person, called the "Intestate" or "Propositus," and lineal and collateral relations according to the common-law and canon-law computation (indicated by Arabic numerals) and the civil law computation (indicated by Roman numerals), lineal relations being represented by the disks vertically connected, collateral relations by those at the side. Thus my brother is related to me by the common and the canon law in the first degree, but by the civil law in the second degree.

ALABAMA

CONSANGUINITY. The son must not marry his mother, or stepmother, or the sister of his father or mother, or the widow of his uncle. The brother must not marry his sister, or half-sister, or the daughter of his brother or half-brother, or of his sister or half-sister. The father must not marry his daughter or granddaughter, or the widow of his son. No man shall marry the daughter of his wife, or the daughter of the son or daughter of his wife. These provisions apply to illegitimate as well as to legitimate children and other relations. The issue of such marriages before the same are annulled shall not be deemed illegitimate. Persons knowingly marrying such relatives, on conviction, must be imprisoned not less than one nor more than seven years, and the conviction annuls the marriage, and the court must declare it void.

MISCEGENATION. If any white person and any Negro or the descendant of a Negro, to the third generation inclusive, though one ancestor of each generation were a white person, intermarry, each must on conviction be imprisoned not less than two nor more than seven years.

The constitution of this State says: "The legislature shall never pass any law to authorize or legalize any marriage between any white person and any Negro, or descendant of a Negro."

The court has held that the word "Negro" includes "mulatto" (Linten's case). The word "creole" has been defined to imply a person of mixed African and European blood. The statement that a woman is a creole may imply that she is a mulatto or a Negro.

TERRITORY OF ALASKA

CONSANGUINITY. Marriage is prohibited where the parties are related to each other within and not including the fourth degree of consanguinity, whether of the whole or half blood, computed according to the rules of the civil law.

ARIZONA

CONSANGUINITY. Marriages are forbidden between parents and children, including grandparents and grandchildren of every degree; between brothers and sisters of half or whole blood; between uncles and nieces, aunts and nephews; and between first cousins. These marriages are declared to be incestuous and void. The rule applies to

illegitimate as well as legitimate relatives. The punishment is imprisonment not to exceed ten years.

MISCEGENATION. Marriages of persons of Caucasian blood or their descendants with Negroes, Mongolians or their descendants are void.

ARKANSAS

CONSANGUINITY. Marriages between parents and children, including grandparents and grandchildren of every degree; between brothers and sisters of half or whole blood; uncles and nieces, aunts and nephews; and between first cousins are void. The rule applies to illegitimate as well as legitimate relatives. The offense is punished as a misdemeanor, by a fine of $100 to $500.

MISCEGENATION. Marriages between whites and Negroes or mulattoes are void.

CALIFORNIA

CONSANGUINITY. Marriages between parents and children, ancestors and descendants of every degree, and between brothers and sisters of half as well as whole blood, uncles and nieces or aunts and nephews, are incestuous and void, whether such relations are legitimate or illegitimate. Either party may proceed by action to have the marriage so declared. The punishment for incest is imprisonment not exceeding ten years.

MISCEGENATION. Marriage of white persons with Negroes, Mongolians or mulattoes is void. The county clerk is forbidden to issue a license for marriage between such persons.

COLORADO

CONSANGUINITY. All marriages between parents and children of every degree; between brothers and sisters of half as well as whole blood; and between uncles and nieces, aunts and nephews; and cousins in the first degree, including illegitimate as well as legitimate children and relatives, are incestuous and void. Persons knowingly marrying such relatives, or performing the ceremony, are guilty of a misdemeanor, punishable by a fine of $50 to $500, or imprisonment not less than three months nor more than two years.

MISCEGENATION. Marriage between Negroes or mulattoes and white persons is void, and punishable in the same manner as marriage with relatives. But people living in that portion of Colorado acquired from Mexico may marry according to the custom of that country.

CONNECTICUT

Consanguinity. No man shall marry his mother, grandmother, daughter, granddaughter, sister, aunt, niece, stepmother, or stepdaughter; no woman shall marry corresponding relatives. If any person marry within the degrees aforesaid, such marriage shall be void. The punishment is imprisonment for not less than two nor more than five years.

Epileptics, Imbeciles, Paupers, etc. Every man and woman either of whom is epileptic, imbecile or feeble-minded, who shall intermarry or live together as husband and wife, when the woman is under forty-five years of age, shall be imprisoned not more than three years. But nothing herein contained shall be construed as affecting the mutual relations of any man and woman lawfully married on or before the thirty-first of July, 1895. For procuring or aiding such a marriage the penalty is five years' imprisonment, or fine not exceeding $1,000, or both.

Every man who shall carnally know any female under the age of forty-five years who is epileptic, imbecile, feeble-minded or a pauper, shall be imprisoned not more than three years. Every man who is epileptic who shall carnally know any female under the age of forty-five years, and every female under the age of forty-five years who shall consent to be carnally known by any man who is epileptic, imbecile or feeble-minded, shall be imprisoned not more than three years.

DELAWARE

Consanguinity. A man shall not marry his mother, grandmother, sister, daughter, granddaughter, father's sister, mother's sister, brother's daughter or sister's daughter. A woman shall not marry her father, grandfather, brother, son, grandson, father's brother, mother's brother, brother's son or sister's son. The penalty for contracting or solemnizing such marriage is a fine of $100, or, in default of this, imprisonment for a term of not more than thirty days.

Miscegenation. Marriage between a white person and a Negro or mulatto (so enrolled) is unlawful. The penalty is the same as for incestuous marriage (above).

Idiots, Insane, Paupers. Marriage between paupers or between a person of sound mind and an insane or idiot person is unlawful. The penalty is the same as for incestuous and miscegenous marriage (above).

DISTRICT OF COLUMBIA

CONSANGUINITY. The marriage of a man with his grandmother, grandfather's wife, wife's grandmother, father's sister, mother's sister, mother, stepmother, wife's mother, daughter, wife's daughter, son's son's wife, daughter's son's wife, wife's son's daughter, wife's daughter's daughter, brother's daughter or sister's daughter, or the marriage of a woman with her corresponding relatives, is prohibited and absolutely void *ab initio* without being so decreed.

Incest is defined in the criminal code as referring to persons related within and not including the fourth degree of consanguinity computed according to the rules of the Roman or Civil Law, and the penalty is imprisonment for not more than twelve years.

IDIOTS, INSANE, PHYSICALLY INCAPABLE. The marriage of an idiot or a person adjudged to be a lunatic, or a marriage in which either party is incapable from physical cause of entering into the marriage state, is illegal and void from the time of a decree of nullity.

FLORIDA

CONSANGUINITY. A man may not marry any woman to whom he is related by lineal consanguinity, nor his sister, nor his aunt, nor his niece. A woman may not marry any man to whom she is related by lineal consanguinity, nor her brother, nor her uncle, nor her nephew. The penalty is a term of not more than twenty years in the State prison, or not more than one year in the county jail.

MISCEGENATION. It is unlawful for any white male person residing or being in this State to intermarry with any Negro female person; and it is in like manner unlawful for any white female person residing or being in this State to intermarry with any Negro male person; and every marriage formed or solemnized in contravention of the provisions of this section is utterly null and void, and the issue, if any, of such surreptitious marriage are regarded as bastard and incapable of receiving any estate, real, personal or mixed, by inheritance. The law says that every person who has one-eighth or more of Negro blood shall be deemed and held to be a colored person or Negro. The penalty for violation of this law is a term of not over ten years in the State prison, or a fine of not more than $1,000.

The State constitution says that "persons of Negro descent to the fourth generation, inclusive," may not marry a white person.

GEORGIA

Consanguinity. A man shall not marry his stepmother, or mother-in-law, or daughter-in-law, or stepdaughter, or granddaughter of his wife. A woman shall not marry her corresponding relatives. If any person shall marry within the Levitical degrees of consanguinity, or within any of the relationships by affinity, such marriage shall be void, and is punishable by imprisonment and labor for not less than one nor more than three years.

Miscegenation. The marriage relation between white persons and persons of African descent is forever prohibited, and such marriages shall be null and void. If any officer shall knowingly issue a license to parties either of whom is of African descent and the other a white person, or if any officer or minister shall marry such persons, it is a misdemeanor, punishable by a fine not exceeding $1,000, or imprisonment not to exceed six months, or by work in the chain gang not to exceed twelve months, or by any one or more of these punishments.

Marriage is a contract, and in this State the following persons are unable to make contracts: Infants, insane persons, idiots and drunkards. For marrying such persons, the penalty is a fine of not over $1,000, or imprisonment for not more than twelve months, or both.

HAWAII

Consanguinity. In order to make valid the marriage contract the respective parties must not be related to each other nearer than in the fourth degree of consanguinity. The penalty for incest or incestuous marriage is a fine of not more than $500, or imprisonment at hard labor for not over ten years.

Insane, etc. The marriage of idiots or insane persons is not prohibited, but such a marriage may be annulled upon the application of the sane party or any relative or the next friend of the idiot or lunatic.

IDAHO

Consanguinity. Marriages between parents and children; ancestors and descendants of every degree; and between brothers and sisters of the half as well as the whole blood; and between uncles and nieces, aunts and nephews, are incestuous and void from the beginning, whether the relationship is legitimate or illegitimate. The punishment is imprisonment not more than ten years.

MISCEGENATION. All marriages of white persons with Negroes or mulattoes are illegal and void.

The penalty for solemnizing illegal marriages is imprisonment in the county jail not over three months, or fine of $300, or both.

ILLINOIS

CONSANGUINITY. Marriages between parents and children, including grandparents and grandchildren of every degree; between brothers and sisters of the half as well as the whole blood; and between uncles and nieces, aunts and nephews; and between cousins of the first degree are declared to be incestuous and void. This prohibition extends to legitimate as well as illegitimate children and relatives. The punishment is imprisonment not exceeding ten years.

INSANE. No insane person or idiot may be capable of contracting marriage.

Issuing a license illegally is a misdemeanor, punishable by a fine of not less than $100 nor more than $500 for each offense.

INDIANA

CONSANGUINITY. Persons must not be nearer of kin than second cousin if they wish to marry. The punishment for incest is imprisonment in State prison not more than twenty-one years, or in county jail from six to twelve months. The punishment attaches where the intercourse is between stepfather and stepdaughter, stepmother and stepson, parents and children, brothers and sisters.

MISCEGENATION. No person having one-eighth part or more of Negro blood shall be permitted to marry any white woman of Indiana, nor shall any white man be permitted to marry any Negro woman or any woman having one-eighth part or more Negro blood. The punishment is a fine of $100 to $1,000 and imprisonment from one to ten years. The marriage is void. Whoever knowingly counsels or in any manner assists in such marriage shall be fined $100 to $1,000.

IOWA

CONSANGUINITY. A man shall not marry his father's sister, mother's sister, father's widow, wife's mother, daughter, wife's daughter, son's widow, sister, son's daughter, daughter's daughter, son's son's widow, daughter's son's widow, brother's daughter or sister's

daughter. A woman shall not marry her corresponding relatives. First cousins may not marry. Parties to such marriages shall be deemed guilty of incest and punished by imprisonment from one to ten years.

KANSAS

Consanguinity. Marriage between parents and children, including grandparents and grandchildren of any degree; between brothers and sisters of the half as well as the whole blood; between uncles and nieces, aunts and nephews, and first cousins, including illegitimate as well as legitimate relatives, is void, and renders the parties liable to imprisonment for not more than five years nor less than three months, or to a fine of not more than $1,000 nor less than $100. Whoever knowingly licenses or solemnizes such a marriage shall be liable to the same penalty as the parties to the marriage.

Insanity, Epilepsy, etc. No woman under the age of forty-five years, or man of any age, except he marry a woman over the age of forty-five years, either of whom is epileptic, imbecile, feeble-minded or afflicted with insanity, shall hereafter intermarry or marry any other person within this State. It is also made unlawful for any person to marry any such feeble-minded, imbecile or epileptic person, or anyone inflicted with insanity, or anyone who has ever been so afflicted. Children born after a parent was insane shall not marry, except under the above-named conditions. No license shall be issued and no officer or clergyman shall perform the ceremony contrary to the provisions of this law. The penalty for breaking this law is a fine of not more than $1,000, or imprisonment in the State's prison for not over three years, or both. An applicant for license must take oath before a probate judge that none of the reasons set forth in this law restricting marriage exist in the case in question.

KENTUCKY

Consanguinity. A man shall not marry his mother, grandmother, sister, daughter or granddaughter; nor the widow or divorced wife of his father, grandfather, son or grandson; nor the daughter, granddaughter, mother or grandmother of his wife; nor the daughter or granddaughter of his brother or sister; nor the sister of his father or mother. A woman shall not marry her corresponding relatives. If the relationship is founded on marriage, the prohibition shall continue notwithstanding the dissolution of such relationship by death or

divorce, unless the divorce is for a cause that rendered the marriage originally illegal and void. Illegitimate as well as legitimate children and relatives are included. Incest between father, mother, child, sister or brother, with knowledge of the relationship, is punishable by imprisonment from two to twenty-one years.

MISCEGENATION. Marriage between a white person and a Negro or mulatto is prohibited and void, and is punishable by a fine of from $500 to $5,000.

IDIOTS, ETC. Whoever shall carnally know a female under the age of sixteen years, or an idiot, shall be confined in the penitentiary not less than ten nor more than twenty years.

Marriage with an idiot or lunatic is prohibited and declared void.

LOUISIANA

CONSANGUINITY. Marriage between persons related to each other in the direct ascending and descending line is prohibited, whether such relatives are legitimate or illegitimate. Marriage between collateral relatives is prohibited between brother and sister, whether of the whole or the half blood (legitimate or illegitimate), and between uncle and niece, aunt and nephew, and between first cousins. The penalty for incest is hard labor for life.

The official issuing a license must first receive an affidavit from one of the parties that they are not related within the prohibited degrees. The husband is required to present a bond with surety in a sum proportional to his means that there exists no legal impediment to his marriage. The bond lasts for two years.

No marriage contracted in contravention of the above provisions in another State, without first having acquired a domicile out of the State, shall have any legal effect in this State. The parties guilty of such a misdemeanor shall be punished by imprisonment in the parish prison for not less than six months nor more than one year, and a fine of not less than $100 nor more than $500.

MISCEGENATION. Marriage between white persons and persons of color is prohibited, and the celebration of all such marriages is forbidden, and such celebration carries with it no effect and is null and void. The Courts have declared that marriage between a white person and a Negro or mulatto never can be valid in this State.

Concubinage is defined to be the unlawful cohabitation of persons of the Caucasian and of the Negro races, whether open or secret.

It is a felony, and the person convicted shall for each offense be imprisoned at the discretion of the court for a term of not less than one month nor more than one year with or without hard labor.

In the last session of the legislature an amendment was passed that every marriage contracted under nullities or incapacities may be impeached by the parties themselves, by any interested person, or by the Attorney-General. Marriages "heretofore contracted" between persons of prohibited degrees, either or both of whom were then or afterwards domiciled in this State, that were prohibited here but have been celebrated in another State or country where the marriage is not prohibited, are valid here also. Marriages "hereafter contracted" between persons either or both of whom were domiciled in this State, and were forbidden to intermarry, shall not be deemed valid in this State because contracted in another State if the parties after such marriage return to reside permanently in this State.

MAINE

Consanguinity. No man shall marry his mother, grandmother, daughter, granddaughter, stepmother, grandfather's wife, son's wife, grandson's wife, stepmother, wife's mother, wife's grandmother, wife's daughter, wife's granddaughter, sister, brother's daughter, sister's daughter, father's sister or mother's sister; and no woman shall marry her corresponding relatives. Such marriages are void and punishable by imprisonment from one to ten years.

Insane. No insane person or idiot is capable of contracting marriage, and the penalty for being a party to such an illegal marriage is sentence to life imprisonment. The passing of this sentence dissolves the contract.

When the overseers of the poor have deposited a list of the paupers with the town clerk no certificate of license to marry shall be issued to a town pauper. For such an act the clerk forfeits $20, the party to the marriage is fined $100, and the person solemnizing the marriage forfeits $100 and his right to solemnize thereafter.

If a person leave the State to avoid the marriage law and then return, the marriage will be void.

MARYLAND

Consanguinity. A man shall not marry his grandmother, grandfather's wife, wife's grandmother, father's sister, mother's sister, mother, stepmother, wife's mother, daughter, wife's daughter, son's

wife, sister, son's daughter, daughter's daughter, son's son's wife, daughter's son's wife, wife's son's daughter, wife's daughter's daughter, brother's daughter, sister's daughter. A woman shall not marry her corresponding relatives. Such marriages are void. If any persons marry within the three degrees of direct lineal consanguinity, or within the first degree of collateral consanguinity, both may be punished by a fine of $1,500, or banishment from the State forever. If they marry within any other degree of kindred or affinity prohibited above they must be fined $500. A minister who marries such parties shall be fined $500.

MISCEGENATION. All marriages between a white person and a Negro, or a person of Negro descent to the third generation, inclusive, are forever prohibited and void, and persons so marrying "are deemed guilty of an infamous crime," and shall be imprisoned from eighteen months to ten years. The minister marrying such parties shall be fined $100.

MASSACHUSETTS

CONSANGUINITY. No man shall marry his mother, grandmother, daughter, granddaughter, stepmother, sister, grandfather's wife, son's wife, grandson's wife, wife's mother, wife's grandmother, wife's daughter, wife's granddaughter, brother's daughter, sister's daughter, father's sister or mother's sister. No woman shall marry her corresponding relatives. Such marriages are void without legal process; and where the relationship exists by marriage, the prohibition continues, notwithstanding the dissolution by death or divorce of the marriage, unless the divorce was for the reason that the marriage was originally unlawful. The punishment for such marriages is imprisonment in the penitentiary not exceeding twenty years or in the jail not exceeding three years.

IDIOTS, INSANE. Marriages where either party is insane or an idiot are void without decree or legal process.

MICHIGAN

CONSANGUINITY. No man shall marry his mother, grandmother, daughter, granddaughter, stepmother, grandfather's wife, son's wife, grandson's wife, wife's mother, wife's grandmother, wife's daughter, wife's granddaughter, nor his sister, brother's daughter, sister's daughter, father's sister or mother's sister. No woman shall marry her

corresponding relatives. Such marriages are void without any decree of divorce or other legal process, and are punishable by imprisonment in State prison for not more than fifteen years or in jail not more than one year.

MISCEGENATION. In the year 1889 marriages between white persons and those wholly or in part of African descent were legally valid by express declaration of the statutes. In 1897, and again in 1899, statutes were passed which declared marriages "heretofore contracted" between white persons and those wholly or in part of African descent are valid and effectual in law for all purposes, and the issue of such marriages are considered legitimate as to one or both of the parents.

INSANITY, EPILEPSY, VENEREAL DISEASES, ETC. No insane person or idiot, or person who has been afflicted with syphilis or gonorrhea, and has not been cured of the same, shall be capable of contracting marriage. Such illegal marriage is a felony, and is punished by a fine of from $500 to $1,000, or imprisonment for not more than five years, or by both, in the discretion of the court. The husband is a witness against the wife in such a case, and the wife against the husband, whether they consent or not. The attending physician is compelled to testify to the facts found by him. This law was passed in 1899.

In 1905 the above law was reaffirmed and the following added: No person who has been confined in any public institution or asylum as an epileptic, feeble-minded, imbecile or insane patient shall be capable of contracting marriage without, before the issuance by the county clerk of the license to marry, filing in the office of the said county clerk a verified certificate from two regularly licensed physicians of the State that such person has been completely cured of such insanity, epilepsy, imbecility or feeble-mindedness, and that there is no probability that such person will transmit any of such defects or disabilities to the issue of such marriage. Any person of sound mind who shall intermarry with such insane person or idiot, epileptic, etc., with knowledge of the disability of such person, or who shall advise, aid, abet, cause, procure or assist in procuring any such marriage contrary to the provisions of this law shall be deemed guilty of a felony and punished as above.

UNIFORM MARRIAGE LAWS. In 1909 a board of commissioners was established for the promotion of uniform legislation between the States on the subject of "marriage, divorce and other subjects."

MINNESOTA

CONSANGUINITY. No marriage shall be contracted between parties who are nearer of kin than second cousins, whether of the half or of the whole blood, computed by the rules of the civil law. The penalty for violation of this law is imprisonment from six months to two years. Such marriage is void without decree.

INSANE, EPILEPTIC, IMBECILE. No marriage shall be contracted between persons either one of whom is epileptic, imbecile, feeble-minded or insane.

DEAF, DUMB, BLIND. The list of persons authorized to ordain marriage includes the superintendent of the department of the deaf and dumb in the Minnesota Deaf, Dumb and Blind Institute.

MISSISSIPPI

CONSANGUINITY. A man shall not marry his mother, his grandmother, stepmother, his sister, daughter, granddaughter, the daughter of his father begotten of his stepmother, the sister of his father or mother, his son's widow, wife's daughter, wife's daughter's daughter, wife's son's daughter, the daughter of his brother or the daughter of his sister; and the like prohibition shall extend to females in the same degrees. Such marriages are void, and the parties shall be fined $500, or imprisoned not longer than ten years, or suffer both fine and imprisonment.

MISCEGENATION. The marriage of a white person and a Negro or mulatto, or person who shall have one-eighth or more of Negro blood, or with a Mongolian, or person who shall have one-eighth or more of Mongolian blood, shall be unlawful, and such marriage shall be unlawful and void, and any party thereto, on conviction, shall be punished as for a marriage within the degrees of relationship prohibited above. Any attempt to evade these laws by marrying out of this State and returning to it shall be punished in the same way.

The constitution of this State prohibits marriage of white persons with persons having one-eighth or more of Negro blood.

INSANE. Insanity or idiocy at the time of marriage, if the complaining party did not know of such infirmity, is a cause for divorce.

MISSOURI

CONSANGUINITY. All marriages between parents and children, including grandparents and grandchildren of every degree; between brothers and sisters of the half as well as the whole blood, and between

uncles and nieces, aunts and nephews, and between first cousins, are prohibited and declared absolutely void, and the prohibition shall apply to illegitimate as well as legitimate offspring and relatives.

Miscegenation. All marriages between white persons and Negroes, and between white persons and Mongolians are prohibited and declared absolutely void.

MONTANA

Consanguinity. Marriages between parents and children, ancestors and descendants of every degree, and between brothers and sisters of the half as well as the whole blood, and between uncles and nieces, aunts and nephews, are incestuous and void from the beginning, whether the relationship is legitimate or illegitimate. The penalty for being a party to such a marriage is imprisonment for not more than ten years. For solemnizing such a marriage the penalty is a fine of $100 to $1,000, or imprisonment from one to two years.

Miscegenation. Every marriage hereafter contracted or solemnized between a white person and a Negro or a person of Negro blood or in part Negro, or between a white person and a Chinese or Japanese person, shall be utterly null and void. Every such marriage which may be hereafter contracted or solemnized without the State of Montana by any person who prior to the time of contracting or solemnizing such marriage has been a resident of the State of Montana, shall be null and void within the State of Montana. The penalty for solemnizing such a marriage is $500 or one month in the county jail, or both.

NEBRASKA

Consanguinity. When the parties stand in the relation to each other of parents and children, grandparents and grandchildren, brother and sister of half as well as whole blood, first cousins when of the whole blood, uncle and niece, aunt and nephew, the marriage is void. This applies to illegitimate as well as legitimate children and relatives.

Miscegenation. Where one party is white and the other is possessed of one-fourth or more of Negro blood, the marriage is absolutely void.

Insane, etc. When either party is insane or an idiot at the time of marriage, such marriage is absolutely void. The term idiot shall include all persons who from whatever cause are mentally incompetent to enter into the marriage relation.

NEVADA

CONSANGUINITY. The marriage of persons nearer of kin than second cousins, or cousins of the half blood, is prohibited and absolutely void, and punishable by imprisonment for a term of from one to ten years.

MISCEGENATION. It is unlawful for any person of the Caucasian or white race to intermarry with any person of the Ethiopian or black race, Malay or brown race, Mongolian or yellow race, or the American Indian or red race, within the State of Nevada. The parties to such marriage or the officer solemnizing it are guilty of a gross misdemeanor, punishable by imprisonment from one to two years.

NEW HAMPSHIRE

CONSANGUINITY. No man shall marry his father's sister, mother's sister, father's widow, wife's mother, daughter, wife's daughter, son's widow, sister, son's daughter, daughter's daughter, son's son's widow, daughter's son's widow, brother's daughter, sister's daughter, father's brother's daughter, mother's brother's daughter, father's sister's daughter or mother's sister's daughter. No woman shall marry her corresponding relatives.

All such marriages are void, without decree, and the issue illegitimate. The parties shall be imprisoned not exceeding one year and fined not exceeding $500, or imprisoned not exceeding three years.

NEW JERSEY

CONSANGUINITY. A man shall not marry any of his ancestors or descendants, or his sister or the daughter of his brother or sister, or the sister of his father or mother, whether such collateral kindred be of the whole or the half blood. A woman shall not marry her similar relatives. A marriage in violation of these provisions shall be absolutely void, according to repeated declarations of the statutes; but the courts of New Jersey have held that such marriages are valid until dissolved by a competent court.

INSANE, EPILEPTIC, ALCOHOLIC, ETC. No license to marry shall be issued when either of the contracting parties, at the time of making the application, is under the influence of intoxicating liquor or a narcotic drug, or is an imbecile, epileptic or of unsound mind; nor shall any such license be issued to any person who is or has been an inmate

of any insane asylum or institution for indigent persons, unless it appears that such person has been satisfactorily discharged from such asylum or institution.

NEW MEXICO

Consanguinity. Marriages between ascendants and descendants, between brothers and sisters of whole or half blood, between uncles and aunts, nieces and nephews, are absolutely void, whether the children referred to are legitimate or illegitimate. Persons celebrating such marriages shall be fined not less than $100 or imprisoned not less than three months, or both, in the discretion of the courts. The guilty bride and groom may be fined likewise.

NEW YORK

Consanguinity. Marriage between an ancestor and descendant, a brother and a sister of the half or the whole blood, an uncle and niece, or an aunt and nephew, is incestuous and void, whether the relatives are legitimate or illegitimate. For being a party to or for solemnizing or aiding such a marriage the penalty is a fine of from $50 to $100, and at the discretion of the court an additional penalty of imprisonment for not more than six months. Indians observe the same marriage laws as citizens.

NORTH CAROLINA

Consanguinity. Marriages between persons nearer of kin than second cousins are void, whether the kinship be of the half or the whole blood; but if there be issue of such a marriage it shall not be declared void after the death of either the father or mother. The punishment when such relatives live together as husband and wife is imprisonment not exceeding five years, in the discretion of the court.

Miscegenation. All marriages between a white person and a Negro or Indian, and between a white person and a person of Negro or Indian descent to the third generation, inclusive, or between a Crotoan Indian or Negro, or between a Crotoan Indian and a person of Negro descent to the third generation, inclusive, are prohibited and void (after being so declared by the court).

The prohibition of marriage between whites and persons of Negro blood to the third generation is incorporated, also, in the State constitution.

INSANE, ETC. Marriages between persons, either of whom is at the time incapable of contracting for want of will or understanding, shall be void (after being so declared by the court).

NORTH DAKOTA

CONSANGUINITY. Marriage between parents and children, including grandparents and grandchildren of every degree, between brothers and sisters of the half as well as the whole blood, are declared to be incestuous and absolutely void. This applies to illegitimate as well as legitimate children and relations.

MISCEGENATION. The marriage of a Negro and a white person is unlawful, and is punished by imprisonment in the State penitentiary for not more than ten years, or a fine of not over $2,000, or both. It is unlawful for a Negro and white person of opposite sex to live together in adultery or fornication, or to live in and occupy the same room. This offense is punished by imprisonment in the State penitentiary for not more than twelve months, or a fine of not more than $500, or both.

Every person who shall have one-eighth or more of Negro blood shall be deemed and held to be a colored person or Negro. For issuing a license for marriage between a Negro and white person or for solemnizing such a marriage the penalty is imprisonment in the penitentiary for not over two years, or a fine of not more $2,000, or both.

INDIANS. Indians contracting marriage according to the Indian custom and cohabiting as man and wife shall be deemed legally married.

OHIO

CONSANGUINITY. Persons nearer of kin than second cousins may not marry. Persons living together as husband and wife, who are nearer of kin by consanguinity or affinity than cousins, having knowledge of their relationship, may be punished by imprisonment from one to ten years.

INSANE, EPILEPTIC, ALCOHOLIC, ETC. No license shall be granted when either of the parties, applicants therefor, is an habitual drunkard, epileptic, imbecile or insane, or who at the time of making application for license is under the influence of an intoxicating liquor or narcotic drug.

In this connection it is interesting to note, however, that in this State a license is unnecessary providing the parties publish notice in

the presence of a religious congregation on two different days of public worship, the first to be ten days before the marriage day.

Deaf and Dumb. The superintendent of the Institute for the Deaf and Dumb is included with ministers, justices of the peace and mayors of cities in the list of officers capable of solemnizing marriages.

OKLAHOMA

Consanguinity. Marriages between ancestors and descendants of every degree, of a stepfather with a stepdaughter, stepmother with stepson, between uncles and nieces, aunts and nephews, except in cases where such relationship is only by marriage; between brothers and sisters of the half as well as the whole blood, and first cousins or second cousins, are declared to be incestuous, illegal and void, and are expressly prohibited. For knowingly solemnizing such marriages the penalty is a fine of not more than $500 and imprisonment from one to five years.

Miscegenation. The marriage of any person of African descent, as defined by the constitution, to any person not of African descent, is prohibited by the Oklahoma statutes. The penalty for violation is a fine of not more than $500 and imprisonment for a term of one to five years.

OREGON

Consanguinity. Marriages are prohibited where the parties thereto are first cousins, or any nearer of kin to each other, whether of the whole or the half blood, computing by the rules of the civil law. The punishment is imprisonment for a term of not less than one year, or a fine of from $200 to $1,000.

Miscegenation. Marriages are prohibited when either of the parties is a white person and the other a Negro, or Mongolian, or a person of one-fourth or more of Negro or Mongolian blood. The penalty is the same as for consanguineous marriage.

The criminal law of Oregon further declares that it shall not be lawful for any white person, male or female, to intermarry with any person having one-fourth or more of Negro, Chinese or Kanaka blood, or having more than one-half Indian blood. All such marriages are absolutely void, and the punishment is imprisonment from three months to one year.

PENNSYLVANIA

CONSANGUINITY. A man shall not marry his mother, his father's sister, mother's sister, sister, daughter, the daughter of his son or daughter, nor his father's wife, son's wife, the daughter of his wife's son or daughter, wife's daughter, the daughter of his wife's son or daughter. A woman may not marry her corresponding relatives. The punishment is a fine not exceeding $500, and imprisonment by separate or solitary confinement at labor not exceeding three years. All such marriages are declared void.

The court says that the marriage of uncle and niece, though valid where contracted, may not be recognized in Pennsylvania.

Since the year 1902 it has been unlawful for first cousins to marry, and all such marriages are void.

ALCOHOLICS. A minister or magistrate who marries a couple when either the bride or groom is intoxicated shall be guilty of a misdemeanor and pay a fine of $50, and be imprisoned not exceeding sixty days.

PORTO RICO

CONSANGUINITY. Marriage may not be contracted between ascendants or descendants by consanguinity or affinity, between collaterals by consanguinity within the fourth degree, the adoptive father or mother and the person adopted, the latter and the surviving husband or wife of the adopter, the adopter and the surviving husband or wife of the adopted, or between the legitimate descendants of the adopter and the adopted person during the time the adoption exists.

The district court may for good cause, on the petition of an interested party, waive the impediment of the fourth degree of consanguinity.

INSANE, ETC. One who is not of sound mind is incapable of contracting marriage.

The laws of Porto Rico make legal the so-called "natural marriage," or cohabiting publicly and bearing children.

RHODE ISLAND

CONSANGUINITY. No man shall marry his mother, grandmother, daughter, son's daughter, daughter's daughter, stepmother, grandfather's wife, son's wife, son's son's wife, daughter's son's wife, wife's mother, wife's grandmother, wife's daughter, wife's son's daughter, wife's daughter's daughter, sister, brother's daughter, sister's daughter,

father's sister or mother's sister. No woman shall marry her corresponding relatives. Every such marriage shall be null and void, and the issue thereof shall be deemed and adjudged illegitimate, and shall be subject to all the disabilities of such issue.

The provisions of this law shall not extend to, or in any way affect, any marriage which shall be solemnized among the Jews, within the degrees of affinity or consanguinity allowed by their religion.

Insane or Idiot. All marriages where either party is an idiot or lunatic at the time of such marriage shall be absolutely void. No dower shall be issued to any widow in consequence of such marriage, and the issue shall be deemed illegitimate and be subject to all the disabilities of such issue.

SOUTH CAROLINA

Consanguinity. A man shall not marry his mother, grandmother, daughter, granddaughter, stepmother, sister, grandfather's wife, son's wife, grandson's wife, wife's mother, wife's grandmother, wife's daughter, wife's granddaughter, brother's daughter, sister's daughter, father's sister or mother's sister. No woman shall marry her corresponding relatives.

For a person to have carnal intercourse within the prohibited degrees of marriage constitutes the crime of incest, punishable by a fine of not more than $500, or imprisonment in the penitentiary not more than one year, or both.

Miscegenation. The marriage of any white person with any person of the Indian or Negro race, or any mulatto, mestizo or half-breed, or the marriage of a white woman with any person other than a white man is unlawful, "null and void and of no effect." Any person violating this law is guilty of a misdemeanor, punishable by a fine of not less than $500, or imprisonment not less than twelve months, or both, in the discretion of the court. Solemnizing such a marriage is punishable in the same way.

The constitution of the State prohibits the marriage of white persons with persons having one-eighth or more Negro blood.

Insane. Idiots and lunatics may not lawfully contract matrimony.

SOUTH DAKOTA

Consanguinity. Marriages between parents and children, ancestors and descendants of every degree, and between brothers and sisters of the half as well as the whole blood, and between uncles and nieces, or

aunts and nephews, and between cousins of the half as well as the whole blood, are incestuous and void from the beginning, whether the relationship is legitimate or illegitimate. The punishment is imprisonment in the State prison not over ten years.

MISCEGENATION. The intermarriage or illicit cohabitation of persons belonging to the African race with any person of the opposite sex belonging to the Caucasian race is hereby prohibited, and any person who shall enter into such marriage or indulge in any such illicit cohabitation, shall be deemed guilty of a felony, and imprisoned in the State prison for a term of not more than ten years, or shall pay a fine of not more than $1,000, or both. All such marriages are null and void from the beginning. It is a misdemeanor to issue a license or to solemnize marriage in such cases.

TENNESSEE

CONSANGUINITY. A person may not marry his or her lineal ancestor or descendant, nor the lineal ancestor or descendant of either parent, nor the child of a grandparent, nor the lineal descendant of husband or wife, nor the husband or wife of a parent or lineal descendant. For being a party to such marriage the punishment is imprisonment not less than five nor more than twenty-one years.

MISCEGENATION. The intermarriage of white persons with Negroes, mulattoes or persons of mixed blood descended from a Negro to the third generation, inclusive, or their living together as man and wife in Tennessee is prohibited. The punishment is imprisonment from one to five years.

The State constitution contains this same prohibition.

TEXAS

CONSANGUINITY. No man shall marry his mother, father's sister or half-sister, mother's sister or half-sister, his daughter, daughter of his father, of his mother, of his brother, of his sister, of his half-brother or sister, the daughter of his son or daughter, his father's widow, his son's widow, his wife's daughter, or the daughter of his wife's son or daughter. No woman shall marry her corresponding relatives. The punishment is imprisonment in penitentiary from two to ten years.

Miscegenation. It is not lawful for persons of Caucasian blood or their descendants to intermarry with Africans or the descendants of Africans. Such marriages are null and void. If any white person and Negro shall knowingly intermarry in Texas, or elsewhere, and thereafter live in Texas, they shall be imprisoned from two to five years. The term "Negro" includes a person of mixed blood descended from Negro ancestry to the third generation, inclusive, though one ancestor of each generation may have been a white person. All other persons are deemed in law white.

UTAH

Consanguinity. Marriage between parents and children, ancestors and descendants of every degree, and between brothers and sisters of the half as well as the whole blood, and between uncles and nieces or aunts and nephews, between first cousins, or any persons related to each other within and not including the fourth degree of consanguinity, computed according to the rules of the civil law, are incestuous and void from the beginning, whether the relationship is legitimate or illegitimate. The punishment for incest is imprisonment in the penitentiary from three to fifteen years.

Miscegenation. Marriage between a white person and a Negro or Mongolian is void.

Insane, Epileptic, Venereal Disease, etc. Marriages are prohibited and declared void with an idiot, lunatic, or person afflicted with syphilis, or gonorrhea, that is uncured, or a person subject to chronic epileptic fits, provided that the last qualification shall not apply to a female over the age of forty-five years.

VERMONT

Consanguinity. No man shall marry his mother, grandmother, stepmother, daughter, granddaughter, grandfather's wife, son's wife, grandson's wife, wife's mother, wife's grandmother, wife's daughter, wife's granddaughter, sister, brother's daughter, sister's daughter, father's sister or mother's sister. No woman shall marry her corresponding relatives. If the relationship is founded on marriage the prohibition continues after the dissolution of the marriage by death or divorce, unless it has been declared void for a cause which rendered it originally unlawful. Such marriages are void without decree, and the penalty therefor is imprisonment not exceeding five years, or fine not exceeding $1,000, or both.

INSANE, TOWN PAUPERS, ETC. The town clerk shall not issue a marriage certificate when either the proposed bride or groom is insane, or under guardianship, without the written consent of the guardian of such party, nor to a town pauper without written consent of the selectment of the town liable for his support.

No marriage shall be contracted in this State by a person residing and intending to continue to reside in another State or jurisdiction, if such marriage would be void if contracted in such other State or jurisdiction; and every marriage solemnized in this State in violation of this provision shall be null and void.

A town clerk issuing a marriage certificate with the knowledge that the parties are thus prohibited from marrying, and a person authorized to solemnize a marriage who shall knowingly solemnize such a marriage, shall be fined not more than $100.

VIRGINIA

CONSANGUINITY. No man shall marry his mother, grandmother, stepmother, sister, daughter, granddaughter, half-sister, aunt, son's widow, wife's daughter or her granddaughter or stepdaughter, brother's daughter or sister's daughter. No woman shall marry her corresponding relatives. If the relationship is founded on marriage the prohibition continues after the marriage is dissolved by death or divorce, unless the divorce be for causes which rendered the marriage originally unlawful or void. The penalty for such unlawful marriages is imprisonment not more than six months, or fine not exceeding $500, in the discretion of the jury.

MISCEGENATION. The intermarriage of a colored person with a white person is punishable by imprisonment for two to five years. Whoever performs the ceremony shall forfeit $200, informer to have one-half. Every person having one-fourth or more Negro blood shall be deemed a colored person.

The court has held that a woman whose father was white, whose mother's father was white and whose great-great-grandmother was of brown complexion is not a Negro in the sense of the statute.

INSANE. All marriages solemnized when either of the parties was insane or incapable from physical causes of entering into the marriage state shall, if solemnized within this State, be void from the time they shall be so declared by a decree of divorce or nullity or the conviction of the parties.

WASHINGTON

Consanguinity. Marriage is forbidden between persons nearer of kin than second cousins, whether of the whole or the half blood, computing by the rules of the civil law. A man shall not marry his father's sister, mother's sister, father's widow, wife's mother, daughter, wife's daughter, son's widow, sister, son's daughter, daughter's daughter, son's son's widow, daughter's son's widow, brother's daughter, or sister's daughter; nor shall a woman marry her corresponding relatives. For such persons to live together as man and wife is punishable by imprisonment from one to ten years. Any auditor who issues a marriage license to such relatives may be fined from $500 to $1,000.

Insane, Epileptic, Alcoholic, Criminal, Tubercular and Venereally Diseased. No woman under the age of forty-five years, or man of any age, except he marry a woman over the age of forty-five years, either of whom is a common drunkard, habitual criminal, epileptic, imbecile, feeble-minded person, idiot, or insane person, or person who has theretofore been afflicted with hereditary insanity, or is afflicted with pulmonary tuberculosis in its advanced stages, or any contagious venereal disease, shall intermarry or marry any other person within this State. Clergymen or other officers are not permitted to marry such persons. Before issuing a license the county auditor must require each applicant to file the affidavit of at least one duly licensed physician showing that the applicants are not in the prohibited class. Also, there must be filed the affidavit of a disinterested person that they are not habitual drunkards. False swearing in these affidavits is perjury, and is punishable by a fine of not over $1,000, or imprisonment for not more than three years, or both.

WEST VIRGINIA

Consanguinity. No man shall marry his mother, grandmother, stepmother, sister, daughter, granddaughter, half-sister, aunt, uncle's wife, son's wife, wife's daughter or her granddaughter or stepdaughter, brother's daughter, sister's daughter, or wife of his brother's or sister's son. No woman shall marry her corresponding relatives.

If the relationship is founded on marriage the prohibition continues after the marriage is dissolved by death or divorce, unless the divorce be for cause which rendered the marriage originally unlawful or void. The penalty for such marriages is imprisonment not exceeding six months, or fine not exceeding $500, or both.

Marriage with a brother's widow is declared lawful.

MISCEGENATION. Any white person who shall intermarry with a Negro shall be imprisoned not more than one year, and fined not exceeding $100. Whoever performs the ceremony shall be fined not exceeding $200.

INSANE. All marriages between persons either of whom was insane shall, if solemnized within this State, be void from the time they are so declared by a decree of divorce or nullity. Such action may be brought, however, only by the parties to the contract. Such action seems to be necessary for all cases of prohibited marriages before they become void.

WISCONSIN

CONSANGUINITY. No marriage shall be contracted between parties who are nearer of kin than first cousins, computing by the rule of the civil law, whether of the half or of the whole blood; and any persons so prohibited who shall intermarry shall be imprisoned from two to ten years, and such marriage shall be void without judgment or decree.

INSANE, EPILEPTIC, ETC. No man and woman either of whom is insane, mentally imbecile, feeble-minded or epileptic shall intermarry. No person authorized to solemnize marriages shall unite such persons in marriage, nor shall any person advise, aid, abet, cause or assist in procuring or countenancing any violation of this act. Any sane person violating these laws is guilty of a misdemeanor and liable to a fine of not less than $50 nor more than $150, or to imprisonment for not more than six months, or both.

Any person who commits fornication, adultery or incest with any female who is idiotic, insane or imbecile shall be punished by imprisonment for a term of five to fifteen years.

WYOMING

CONSANGUINITY. Marriage is prohibited between parents and children, grandparents and grandchildren, brothers and sisters of the half as well as of the whole blood, uncles and nieces, aunts and nephews, and first cousins by blood. The prohibition extends to illegitimate as well as to legitimate children and relatives. The punishment is imprisonment for from one to ten years.

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BULLETIN No. 10 A

Report of the Committee to Study and to Report on the Best Practical Means of Cutting Off the Defective Germ-Plasm in the American Population.

I. THE SCOPE OF THE COMMITTEE'S WORK

BY

HARRY H. LAUGHLIN

Secretary of the Committee

Cold Spring Harbor
Long Island, New York
February, 1914

Eugenics Record Office

Committee to Study and to Report on the Best Practical Means of Cutting Off the Defective Germ-Plasm in the American Population.

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E. E. Southard

Criminology—
Warren W. Foster

Sociology—
Franklin H. Giddings

Economics—
James A. Field

Statistics—
O. P. Austin

Immigration—
R. DeC. Ward

Law—
James M. Beck and
Louis Marshall

History—
James J. Walsh

Public Affairs—
Irving Fisher

Religion and Morals—
Newell Dwight Hillis

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INTRODUCTION.

The investigation reported in this series of studies was initiated at the second meeting of the Research Committees of the Eugenics Section of the American Breeders Association at Palmer, Mass., May 2 and 3, 1911, Dr. W. N. Bullard presiding. At this meeting the following resolution was unanimously adopted: *Resolved,* That the Chair appoint a committee commissioned to study and report on the best practical means for cutting off the defective germ-plasm in the American population. Whereupon Dr. Bullard, after consultation, named the following members: Dr. W. H. Mitchell, Hathorne, Mass., Chairman; Bleecker Van Wagenen, Alstead Center, N. H.; Dr. Everett Flood, Palmer, Mass.; Dr. W. H. Carmalt, New Haven, Conn.; H. H. Laughlin, Cold Spring Harbor, Long Island. Later in the day the Chairman, Dr. Mitchell, designated Mr. Laughlin Secretary.

On July 15, 1911, the committee met with Mr. Van Wagenen at the City Club, 55 West 44th Street, New York City. Dr. Mitchell, on account of other engaging duties, resigned the chairmanship of the committee; whereupon, on motion of Dr. Carmalt, Mr. Van Wagenen was unanimously chosen Chairman. The committee met from time to time under the leadership of Mr. Van Wagenen, and outlined the investigation. It was decided to make the study as comprehensive and as thorough as possible, and to this end the aid of an expert advisory committee was deemed essential. The following named experts were duly invited and accepted membership on the committee as indicated:

Medicine, L. F. Barker; physiology, W. B. Cannon; surgery, Alexis Carrel; biology, Herbert J. Webber; thremmatology, Raymond Pearl; anthropology, Alex. F. Chamberlain; psychiatry, Stewart Paton; psychology, H. H. Goddard; woman's viewpoint, Mrs. Caroline B. Alexander; criminology, Warren W. Foster; sociology, Franklin H. Giddings; economics, James A. Field; statistics, O. P. Austin; immigration, R. DeC. Ward; law, James M. Beck and Louis Marshall; history, James J. Walsh; public affairs, Irving Fisher; international cooperation, E. E. Southard.

The work of gathering and analyzing data began in the summer of 1911, and the Chairman, Mr. Van Wagenen, presented before the First International Eugenics Congress, which met in London, July 24 to 30, 1912, a preliminary report of the investigation.

It is the purpose of the committee to investigate all phases of the problem of cutting off the supply of defectives, and to publish from time to time data which will, we trust, aid the student of social affairs in weighing any particular phase of the problem that may present itself. The committee will therefore study the facts in reference to the numbers of and the rate and manner of increase of the socially inadequate. It will strive to analyze the factors of heredity and environment in the production of the social unfitness observed. It will report first-hand facts concerning the drag that these classes entail upon the general welfare, and will review the first-hand studies in human heredity that have been made by careful study of the problem. And finally the committee will point out what appears as a result of study to be "the best practical means," so far as the innate traits are a factor, of purging the blood of the American people of the handicapping and deteriorating influences of these anti-social classes.

The first series of studies will be devoted to a study of sterilization as a eugenical agency.

THE FIELD OF STUDY

The specific problems, then, now before this committee may be classified as follows:

1. *Medicine:* Standards and methods for determining the types of degenerates proposed for eugenical segregation or sterilization. The relation of sterilization to the spread of venereal diseases. Sterilization as a therapeutic agent. The classification and determination of human defects.

2. *Physiology:* Comparative effects of the various forms of sterilization on normal and the different types of abnormal individuals, both male and female, at different ages, in respect to nutrition, growth, temperament, primary sex organs, secondary sexual characteristics, voice and physiological reactions.

3. *Surgery:* Technical and popular description of the various methods employed in sterilizing both males and females. Seriousness and difficulty of the operations. Preparation and convalescence. Possibility of restoring the procreatory function in sterilized persons.

4. *Biology:* The origin of defective strains within the human population. Processes of contaminating normal strains with defective traits. The inheritance of defective traits and the manner of their combination into various legal types of the socially unfit. The com-

parative influence of modern and ancient social conditions on the selective elimination of defectives. The probable outcome of the present tendencies if unchecked.

5. *Thremmatology:* Efficacy of sterilization of hereditary degenerates to raise the average of the race. Comparison between the essential principles of eugenics and of plant and animal breeding, application of these principles in consonance with the highest social and moral ideals. Criteria for the identification of persons possessing defective germ-plasms. The consideration of persons of mixed worth and defect. Relative thremmatological effect of sterilizing all persons with defective germ-plasms, and of sterilizing only degenerates. Measure of the relative thremmatological value of sterilization on different scales and at different rates.

6. *Anthropology:* History of sterilization and asexualization among ancient and modern nations and tribes. Motives, voluntary factors, etc. Effect upon tribal and national growth.

7. *Psychiatry:* Classification of the various types of the insane with especial reference to the hereditary factor. Standards and tests for diagnosis.

8. *Psychology:* Standards and tests for determining the types of mental degenerates and defectives proposed for sterilization. Effects of the various forms of sterilization on both males and females in mental processes, industry, habits of life, and sex instincts.

9. *Morals and Ethics:* Eugenics and democracy. The attitude of the various churches toward the proposal to sterilize persons known to possess defective germ-plasms. The ethical, moral, and ontological aspects of sterilization. Eugenical limitations of marriages by the ministry.

10. *Woman's Viewpoint:* Relative responsibilities and burdens of men and women within the socially unfit classes in rearing children. Sterilization as a punitive, humane, and eugenic measure; and as an agency for social prophylaxis. Woman's view of the rights of parentage of individuals liable to beget socially unfit offspring or who are unable to provide the environment necessary to the normal development of offspring. The attitude of society toward such individuals.

11. *Criminology:* Role of heredity in crime. Standards and tests for determining the criminal types proposed to sterilize. What constitutes a confirmed criminal? Consideration of the justice of the operation in the case of redeemable delinquents.

12. *Sociology:* Relative rights and duties of the race and the individual whom society proposes to sterilize. Part the sterilized individual takes in the social fabric and the attitude of society toward such individuals. Estimate of the relative proportion of the socially unfit committed to institutional care to those living in the population at large. Method of reaching defective and potential parents of defectives not in institutions. Relation of sterilized individuals to the social evil, and the spread of venereal diseases. Estimate of the present social handicap of defectives on the American and other peoples. Relative roles of heredity and environment in producing defectives. Relative rights of control of society and the individual over germplasm. Presentation of special problems connected with the elimination of each of the several following classes of the socially unfit: (a) the feeble-minded class, (b) the pauper class, (c) the inebriate class, (d) the criminalistic class, (e) the epileptic class, (f) the insane class, (g) the asthenic or physically weak class, (h) those predisposed to specific diseases or the diathetic class, (i) the physically deformed, (j) those with defective sense organs, or the cacæsthetic class.

13. *Political Economy:* Measure of the economic handicap of the presence of defectives. Their relation to national, industrial, military, and intellectual efficiency and to national perpetuity. Relation of sterilization on different scales to future population, and to the relative extent of the defective classes. Relation of sterilization to immigration.

14. *Statistics:* Data relative to the past, present and probable future cost of maintaining defectives; their number and classification; their rate of increase—absolutely, and compared to the rate of increase of the better strains. The age of persons committed to State custody. Rate of commitment. Length of commitment.

15. *Law:* Examination of existing sterilization laws with the view to determining whether the constitutional personal guarantees are sufficiently safeguarded. Do the committees and commissions authorized to enforce the several sterilization laws constitute special courts? Can the decisions of such commissions and committees reverse or modify court decrees? Is sterilization in any of the laws held a punitive remedy? If so, can it be considered as a second punishment for one offense, or as cruel or unusual punishment? Is the State taking any retaliatory measures toward a certain class of offenders in authorizing the operation? Can the sterilization of degenerates, or especially of criminals, be legitimately effected through the exercise of police functions? Flexibility of the common law in adapting itself to new

social problems. Legal aspect of sterilization in states practicing it without the express authorization of the law. Do existing laws permit any other surgical operation than sterilization? If so, legal bearing? Do existing laws authorize sterilization as a punitive, a reformatory, a therapeutic, or a eugenic measure? Sterilization and inheritance of property. Framing a model law permitting the sterilization of persons known to have defective germ-plasms, establishing criterion therefor, and providing for effective execution. Digest of litigation bearing upon or growing out of the operation. Examination of those laws on commitment to state institutions.

16. *History:* Account of the origin, development and relative numbers of the socially unfit within the great nations of history. Attitude of society toward this class. War and defectives. Elimination of the best blood in relation to national decline. Genius and national greatness.

17. *Public Affairs:* Sterilization in relation to the general welfare. The conservation policy and sterilization. Political expediency of the proposed remedy. Weighing and balancing of the facts and arguments presented by the consideration of the several aspects of the problems with the view to practical application.

18. *International Co-operation:* A review of the studies looking toward the possible application of the sterilization of defectives in foreign countries, together with records of any such operations from eugenical motives; foreign laws, customs and attitudes in reference to eugenical sterilization. The extent and nature of the problem of the socially inadequate in foreign countries.

To complete this series of studies is a huge task, and the committee will be satisfied if it can present under each of the given headings a few of the many pertinent facts for consideration by the public.

From the beginning of these studies the committee has, at frequent intervals, had the advantage of consultation with Dr. Charles B. Davenport, the resident director of the Eugenics Record Office, and to him for his many valuable suggestions the committee is greatly indebted.

HARRY H. LAUGHLIN, *Secretary*,
Cold Spring Harbor, Long Island.

December 1, 1913.

CHAPTER I.

THE PROBLEM.

Human progress demands sincere and purposeful social endeavor in all fields promising social or racial betterment. As society becomes more complex and scientific discovery moves apace, the field of profitable social endeavor widens rapidly; but it is still clear that no one agency alone can effect a regeneration of humanity. In order to move forward, humanity and civilization will always require the best efforts of education, religion, philanthropy, agriculture, commerce, industry, social justice, law and order, medicine, technology, and pure science; no one of these can carry the whole burden of progress, although the decay of any one of them would cause a general deterioration to set in. Organization in society exists for the purpose of correlating and directing along profitable lines all of these agencies. Eugenics, which Davenport defines as "the improvement of the human race by better breeding," is one of these agencies of social betterment, which in its practical application would greatly promote human welfare, but which if neglected would cause racial, and consequently social, degeneration. Eugenics, then, is the warp in the fabric of national efficiency and perpetuity. As an art it is as old as mankind; as a science it is just now taking definite form. Whenever the principles governing an art are definitely determined and made to guide humanity, progress in the particular field so affected is rapid.

Modern family history studies have amply demonstrated that heredity plays an important part in social adequacy; and the studies of this committee are tentatively based upon this fact. Since this is true, it then behooves society, in the interests of social and racial progress, to devise means for promoting fit and fertile matings among the better classes, and to prevent the reproduction of defectives.

Since heredity is the fundamental factor of racial fortune, and is therefore the primary agency in the application of eugenical principles, it is thought proper in these studies to present a brief outline of the basic phenomena of natural inheritance.

The accompanying diagram is presented with this in view:

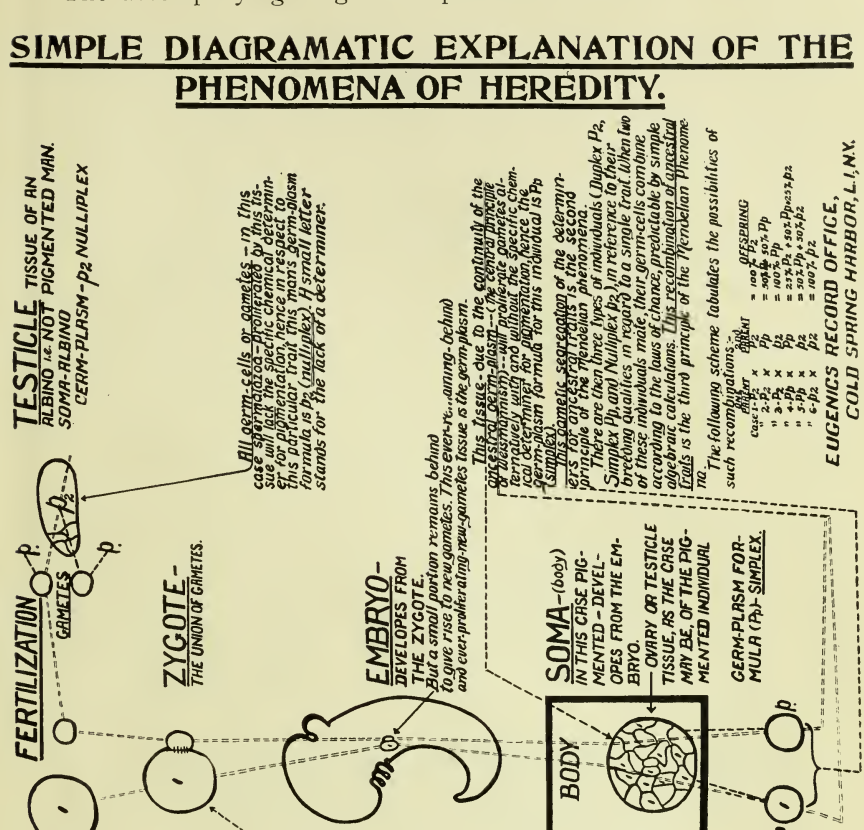

Fig. No. 1

From a careful perusal of this diagram one learns that in so far as the bodily aspect and the method of inheritance of a trait are concerned there are two kinds of traits, namely, (1) dominant traits, and (2) recessive traits. The following pedigrees illustrate how each of these types is inherited:

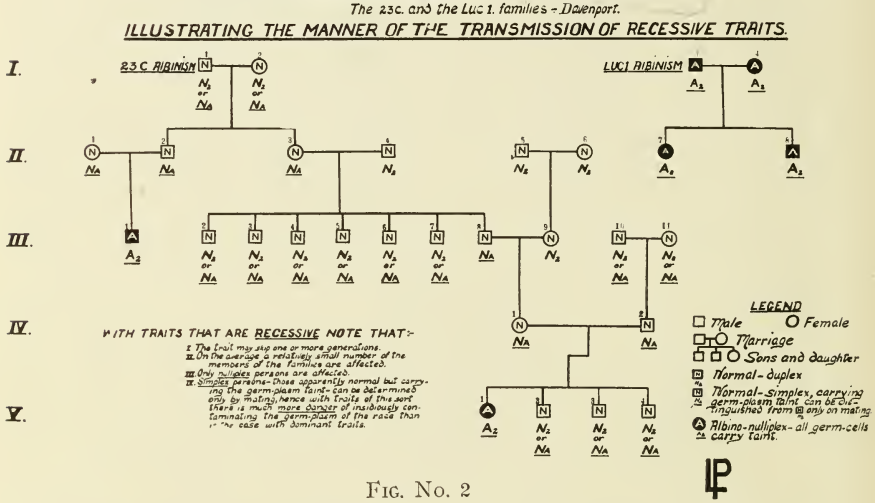

FIG. No. 2

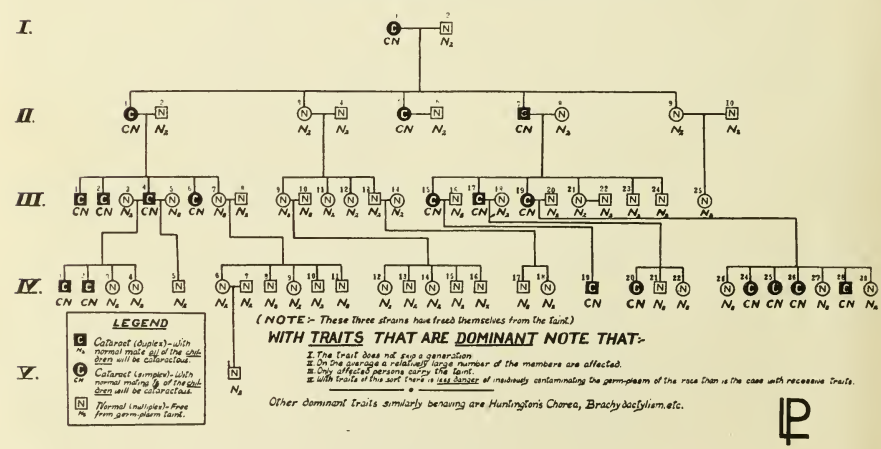

FIG. No. 3

There are many thousand human traits; in the Trait Book (Bulletin No. 6, Eugenics Record Office) Dr. C. B. Davenport lists 2,500 human characteristics—mental and physical; normal and pathological; defective and sterling. But it must not be assumed that these characteristics are unit traits in the Mendelian sense; doubtless most of them are hereditary complexes which resolve into their elements, permitting new conditions in hereditary transmission. A given individual is a fortuitous mosaic of the unit traits of his ancestors. The foregoing diagram and charts show how these traits are segregated, sorted, and recombined. The location of independent units of heredity and the determination of the manner of their inheritance constitute one of the most important branches of eugenical study. Eugenics is a long-time investment, and will appeal only to far-sighted patriots, but, due to the infinite possibilities of recombination, it should produce royal returns in both positive and negative directions.

The studies of this committee are limited to the negative side of the problem, namely, the uprooting of inborn defectiveness, rather than to the positive or constructive agencies of mate-selection and fecundity, among the more talented classes. Its task therefore is vastly less difficult than that which confronts the student of the constructive agencies, for, if a person possesses hereditary traits which render that particular individual unable to cope with his social environment, such person's line of descent should be cut off—a relatively simple process. But for the determination and consummation of wise matings among the upper levels in a highly organized society, the highest degree of scientific knowledge and of social endeavor, in addition to a much longer period of time, are required.

THE SOCIALLY INADEQUATE IN THE AMERICAN POPULATION

The accompanying table, which the committee has compiled from the census reports, shows the extent and growth of institution population in the United States. Fig. No. 4.

In this table the epileptics are included with the other classes; specialized institutions for this type of defectives are for the most part of recent origin. Dr. David F. Weeks (Nov. 3, 1913) reported for the State of New Jersey 443 epileptics at the Skillman Village, 426 in other institutions, 62 in schools, 880 others at large—a total of 1,811 who are registered at the State Village for Epileptics. He estimates that approximately 7 per cent. of the institution population of the United States are epileptics.

INMATES OF INSTITUTIONS IN THE UNITED STATES.

Institutions for	ELEVENTH CENSUS-1890 TOTAL POPULATION-62,222,250			TWELFTH CENSUS-1900 (1) TOTAL POPULATION-75,994,575			THIRTEENTH CENSUS-1910 TOTAL POPULATION-91,972,266			INCREASE(+) DECREASE(-) TOTAL POPULATION +13,772,325 ELEVENTH CENSUS 1890 vs THE TWELFTH 1900			INCREASE(+) DECREASE(-) TOTAL POPULATION +13,977,691 TWELFTH CENSUS 1900 vs THE THIRTEENTH 1910		
	No. of Institutions	No. of Inmates	Inmates per 100,000 Population	No. of Institutions	No. of Inmates	Inmates per 100,000 Population	No. of Institutions	No. of Inmates	Inmates per 100,000 Population	No. of Institutions	No. of Inmates	Inmates per 100,000 Population	No. of Institutions	No. of Inmates	Inmates per 100,000 Population
Blind and Deaf	88	7,652	12.2	115	15,153 (2)	18.	× 125	× 15,439 (3)	16.8	+27	+7,501	+5.8	+10	+286	-1.2
(4) Feeble-Minded	24	5,254 (5)	8.4	42	14,347	18.8	× 62	20,731	22.5	+18	+9,093	+10.4	+20	+6,384	+3.7
Insane	162	74,028	118.2	328	150,151	186.2	367	187,791	204.2	+166	+76,123	+68	+39	+37,640	+18.0
(6) Criminal	2,602	82,329	131.5	1,337	81,772 (7)	100.6	(10) × 2978	111,609 (8)	121.4	-1265	-557	-30.4	+1641	+29,837	+20.8
Juvenile Delinquents	58	14,846	23.7	93	23,034	28.3	× 99	25,000	27.2	+35	+8,188	+4.6	+6	+1,966	-1.1
Paupers	2,373	73,045	116.6	2,476	81,764	101.4	× 2412	84,198	91.5	+103	+8,719	-15.2	-64	+2,434	-9.9
(9) Eleemosynary	1,916	111,910	179.8	4,092	268,656	354.6	× 5290	× 396,476	431.1	+2176	+156,746	+174.8	+1198	+127,820	+76.5
Total	7,223	369,064	590.4	8,483	634,877	807.9	11,333	841,244	914.7	+1260	+265,813	+217.5	+2850	+206,367	+106.8

(1) The special enumeration of the 12th Census was made in 1904.
(2) 1910 Enumeration found 44,471 Deaf and Dumb; 61,481 Blind; 572 Blind, Deaf and Dumb:- Total — 106,524
(3) The 11th Census enumerated 95,609 in population at large.
Jno. Koren estimated the Feeble-Minded in 1900 at 150,000.
(7) Included in the 11th but not included in the 12th Census —
(a) Prisoners not under sentence.
(b) In military and naval prisons.
(c) In prison for non-payment of fines.
(d) Children under 10 years of age.

(2) Alex. G. Bell's special enumeration:- Blind 64,763 — Deaf 89,287
(4) Epileptics included for the most part with the Feeble-Minded.
(6) U.S. Civil Prisons, State Prisons, State and County Penitentiary, Reformatories for Adults, County Jails and Work-houses, Municipal Prisons and Work-houses, including 590 empty county jails.
(8) Includes cases of imprisonment for non-payment of fine - 1900 does not include these.
(9) Orphanages and Childrens Homes, Nurseries, hospitals, dispensaries, permanent and temporary homes.
(10) Exclusive of 194 Institutions, reports unobtainable.
× Data supplied Oct. 6, 1913 by special courtesy of Wm. J. Harris, Director of the census.

EUGENICS RECORD OFFICE,
COLD SPRING HARBOR,
L.I., N.Y.

FIG. No. 4

It is hoped that in future censuses data will be secured for measuring the movement of the anti-social varieties of our population. In applying any program for reducing the supply of defectives it is essential that such data be constantly at hand, else how can the efficacy of the agencies applied be judged? It should be possible, at regular intervals, to construct tables similar to the above for each of the classes and sub-classes described in Chapter II of this study.

Besides these individuals in institutions at one time constituting .914 per cent. of our total population, there are several times this number of persons now living who have never been committed to the State's custody, for the population of institutions is constantly shifting. Besides these there are those of equally meagre natural endowments and equally anti-social in conduct who, due to the caprice of fortune, have never been taken in custody by the State.

Just above this class there is a great aggregation of the individuals on the border-line between usefulness and social unfitness, who are so interwoven in kinship with the still more socially inadequate families that they are wholly unfitted for parenthood, because they cannot produce offspring with even mediocre natural endowments. If they mate with a higher level, they contaminate it; if they mate with the still lower levels, they bolster them up a little only to aid them to continue their own unworthy kind. They constitute a breeding stock of social unfitness.

For the purposes of eugenical study and in working out a policy of elimination, it seems fair to estimate the anti-social varieties of the American people at 10 per cent. of the total population; but even this is arbitrary. No matter in what stage of racial progress a people may be, it will always be desirable in the interests of still further advancement to cut off the lowest levels, and to encourage high fecundity among the more gifted.

According to the last census (1910) .914 per cent. of the total population, or 841,244 persons, were inmates of institutions for the anti-social and the unfortunate classes in the United States. The institution population is constantly shifting, and the inmates and patients, as a rule, remain under custodial care but a few years. Of the total number of living persons, then, a much larger percentage have been legally committed to the State's custody after having been duly declared inadequate in one or another phase of the normally expected social reactions. Besides these persons who have been committed to institutions, there are many others of equally unworthy personality

and hereditary qualities who have, through the caprice of circumstance, never been committed to institutions. In addition to these unfit persons there are many parents who, in many cases, may themselves be normal, but who produce defective offspring. This great mass of humanity is not only a social menace to the present generation, but it harbors the potential parenthood of the social misfits of our future generations. It therefore largely constitutes the socially inadequate varieties of the American population. Insofar as the defective traits of the members of these varieties are inborn, they are to be cut off only by cutting off the inheritance lines of the strains that produce them. This is the natural outcome of an awakened social conscience; it is in keeping not only with humanitarianism, but with law and order, and national efficiency. Under an older and harsher order of civilization these lower classes were cut down by disease, famine and petty strife, while the stronger survived, albeit when petty strife took on the aspects of serious warfare then, too, the upper levels suffered most severely; under the present social order there is a bolstering up of the lower and more helpless levels so that their fecundity is evidently operating against these older inhuman, but race-purifying, agencies. It now behooves society in consonance with both humanitarianism and race efficiency to provide more human means for cutting off defectives. Society must look upon germ-plasm as belonging to society and not solely to the individual who carries it. Humanitarianism demands that every individual born be given every opportunity for decent and effective life that our civilization can offer. Racial instinct demands that defectives shall not continue their unworthy traits to menace society. There appears to be no incompatibility between the two ideals and demands.

CHAPTER II.

CLASSIFICATION OF THE SOCIALLY UNFIT FROM DEFECTIVE INHERITANCE: THE CACOGENIC VARIETIES OF THE HUMAN RACE.

The basis for measuring social inadequacy is purely functional, but, in considering the removal of such inadequacy, the causes of the lack of proper functioning must be studied, and hence, for such purposes, the logical basis of classification is etiological. And, if the eugenical rather than the environmental side of the problem is to be considered, then, quite properly, the practical classification scheme must be primarily a biological one based upon hereditary qualities.

For a long time students of human society have practically agreed that, along with the circumstances of environment, the anti-social individuals of the human race originate to some degree from innate characteristics; that there are families and strains of low social value or of positive social menace.

Individual misfits in the social fabric are sometimes classified as "the Defective, the Dependent, and the Delinquent." Sometimes this classification of "the three D's" is recast and increased to the five D's by adding the "Deficient" and the "Degenerate" classes. In this classification: 1, a tramp or a pauper would be called a *Dependent;* 2, an idiot or an imbecile would be called a *Deficient;* 3, the manic depressive or the senile dement would be called a *Defective;* 4, the thief or the truant would be called a *Delinquent;* and, 5, a sadist or a moral imbecile would be called a *Degenerate.*

This classification is, however, inadequate from the eugenical point of view, for the eugenical classification of individuals is based upon innate traits and hereditary potentialities. Whether wholly of defective inheritance or suffering from an insurmountable hereditary handicap, the members of the following groups are, in so far as their traits are hereditary, cacogenic, and the following classification is, therefore, presented as being constructed on a eugenical basis: 1, the feeble-minded class; 2, the pauper class; 3, the inebriate class; 4, the criminalistic class; 5, the epileptic class; 6, the insane class; 7, the constitutionally weak, or the asthenic class; 8, those predisposed to specific diseases, or the diathetic class; 9, the physically deformed class; 10, those with defective sense organs, as the blind and the deaf, or the cacæsthetic class.

This classification of the socially inadequate is obviously partly legal and partly medical, but it is in most part biological, although a purely biological classification would be extremely complex, since it must be based upon unit traits of defective inheritance and their combinations into personalities of the various legal, medical and social types. For an exact scheme of classification no simple basis has yet been found. Such a scheme would involve as many classes as there are anti-social individuals, for no two individuals, even though they may belong to the same general class, will have exactly the same combination of traits. It is sufficient for present purposes to find a scheme providing for the grouping of related types on the basis of those hereditary qualities which appear to dominate their respective personalities. In such a scheme the general lines of demarcation are clearly

enough drawn, but the specific boundaries must be arbitrarily and tentatively indicated.

In the classification of the cacogenic varieties of the human race just rendered many of the classes overlap and ofttimes a given individual may belong to two or more classes. Thus, for instance, factors of feeble-mindedness doubtless run through some of the other groups, and insanity and criminality often overlap and so on. The problem of eugenics would be infinitely simpler if segregable traits rather than individuals could be made the immediate rather than the ultimate basis of selection. But the individual with his or her composite of good and bad qualities must be the immediate basis for eugenical classification, since he or she is the immediate basis for selection for parenthood.

This classification on the basis of individuals is further justified by the fact that, in the case of defectives, one type of defect usually stands out prominently above the rest and the individual, although he may possess a complex of defects, is thus called blind or insane or criminalistic, according to his most prominent characteristic, athough he may possess innately any or all of these characteristics, any one of which makes him cacogenic. Hence, because members of the above enumerated classes possess in common a number of traits incompatibile with the best social adjustment, this classification appears to fit well into both the social and the biological scheme and may, therefore, well be used as the practical working basis for the profitable study of the best practical means for cutting off the supply of human defectives.

1. THE FEEBLE-MINDED CLASS

The greatest of all eugenical problems in reference to cutting off the lower levels of human society consists in devising a practicable means for eliminating hereditary feeble-mindedness. From a functional point of view, there are all grades and qualities of this defect from the lowest idiot with the mentality not greater than that of the normal two-year-old child to the imbecile with the mentality not greater than that of a twelve-year-old child and the "backward" child or adult. The chronological age of such individuals is always somewhat and may be greatly in excess of their mental years.

From a social point of view this classification is perhaps sufficient. Tredgold in his book on mental deficiency defines the defectives of these three groups in accordance with the basis recommended by the Royal College of Physicians:

1. Idiocy (Low Grade Amentia). The idiot is defined as "a person so deeply defective in mind from birth or from early age that he is unable to guard himself against common physical dangers."

2. Imbecility (Medium Grade Amentia). The imbecile is defined as "one who, by reason of mental defect existing from birth, or from an early age, is incapable of earning his own living, but is capable of guarding himself against common physical dangers."

3. Feeble-mindedness (High Grade Amentia). This is the mildest degree of mental defect, and the feeble-minded person is "one who is capable of earning a living under favorable circumstances, but is incapable, from mental defect existing from birth, or from an early age, (a) of competing on equal terms with his normal fellows; or (b) of managing himself and his affairs with ordinary prudence."

Tredgold suggests that, in addition to this classification, it might be well to define the moral imbecile as "a person who displays from an early age, and in spite of careful upbringing, strong vicious or criminal propensities, on which punishment has little or no deterrent effect." In its more restricted sense the term "degenerate" seems to mean practically the same as the expression "moral imbecile."

It is the moron or high-grade feeble-minded class of individuals that constitute the greatest cacogenic menace, for these individuals, with little or no protection by a kindly social order, are able to, and do, reproduce their unworthy kind. The still lower grades possess such inferior and ill co-ordinated natural qualities that they require great bolstering up in order to reproduce at all. Under the selfishly severe stress of a primitive order of social affairs, natural selection would readily cut off these lowest classes.

In classifying individuals on the functional basis, the general or average end result in their functioning must be considered, but there is also a qualitative difference. Two individuals may grade, according to Binet test, as mentally, say, five years of age. Whereas one may possess a remarkable memory, but be totally unable to calculate or to be educated in manual skill; the second may be manually skillful and at the same time possess a very poor memory, and so forth throughout all the possible combinations of normal traits and defects. This peculiar combination of good and bad qualities is further exemplified in the case of idiot savants. Tredgold describes the Genius of Earlswood Asylum: "A patient whose skill in drawing, invention and mechanical dexterity is certainly unequalled by any inmate in any similar institution in existence." In general this individual who, at the time of Tredgold's book (1908) was 73 years old, functioned as feeble-minded, but, in certain lines of manual skill, he must be ranked as a genius.

But it is necessary for the study of heredity to classify individuals who function as feeble-minded, according to their hereditary traits. The following classification on the basis of clinical variety and hereditary etiology seems to be eugenically logical. This series is arranged approximately in descending order of hereditary causal factors and in ascending order of exogenous causal factors.

Feeble-mindedness

1. Moronic. (Simple functional.)
2. Microcephalic.
3. Epileptic.
4. Amaurotic-idiotic.
5. Cretinic.
6. Mongolic.
7. Anæsthetic.
8. Toxic. (Resulting from disease.)
9. Traumatic. (Resulting from injury.)

2. THE PAUPER CLASS

Individuals belonging to this class fall quite naturally into the following three groups:

1, Tramps; 2, Beggars; 3, Ne'er-do-wells.

Many of these individuals belong properly to the feeble-minded class. Oftentimes their special defect or deficiency takes the form of shiftlessness or laziness. Adults of normal traits, who have been socially adequate, but have, through accident, and children who have, through an absolute lack of training and opportunity, become defective and dependent upon charity are not, for the purposes of this study, to be included in the pauper class. It is only with the individual of a hereditary, degenerate make-up which manifests itself in an inability to get on, or lack of ambition, or laziness which drives him or her beyond the bounds of self-maintained usefulness in an organized society that this study is concerned. These individuals are so strikingly antisocial that society is justified, if the general uselessness can be shown to be hereditary, in cutting off the descent line of this whole group of individuals, even if their specific traits and defects cannot be catalogued.

3. THE INEBRIATE CLASS

With this class as with the paupers, mental deficiency appears to be the endogenous cause. In this particular group the deficiency appears to be of a moral nature, preventing the individual from exercising his moral purpose or inhibitions. Under a purely functional classification, many of the feeble-minded, the criminals, the paupers and the inebriates would be called simply Degenerates, but, as just pointed out, the peculiar type of degeneracy that appears in the inebriate seems to be quite different from other sorts of degeneracy herein described. Individuals belonging to this class present the following special varieties: 1, Dipsomania; 2, Chronic Alcoholism; 3, Pharmacomania.

Alcoholism has a peculiar eugenic signification in that it appears to be inextricably tangled up with mental and physical degeneration of all kinds. From a biological point of view, it is difficult to obtain a clear-cut classification of inebriates.

Havelock Ellis in his book, "The Criminal," says:

> The relation of alcoholism to criminality is by no means so simple as is sometimes thought; alcoholism is an effect as well as a cause. It is part of a vicious circle. For a well-conditioned person of wholesome heredity to become an inebriate is not altogether an easy matter. It is facilitated by a predisposition, and alcoholism becomes thus a symptom as well as a cause of degeneration. * * * It may be added that the danger of alcoholism, from the present point of view, lies not in any mysterious prompting to crime which it gives, but in the manner in which the poison lets loose the individual's natural or morbid impulses, whatever these may be.

The following statements are taken from the report of the Board of Trustees of the Foxborough State Hospital, Massachusetts, 1909:

> Drunkards are often classified for courtroom purposes as follows:
>
> 1. The accidental drunkard.
> 2. The occasional drunkard.
> 3. The habitual drunkard.
>
> 1. The accidental drunkard is one who has unwittingly drunk too freely of alcohol at saloon or club. His drunkenness is often unintentional, and frequently due to inexperience in drinking. If found without escort, he is arrested, quite as much for his own protection as for that of the public. A large percentage of cases of first arrests belong to this group.
>
> 2. The occasional drunkard is one who becomes intoxicated infrequently, and without morbid predisposing cause. Such especially are the convivial drunkards, for whom holidays or celebrations involve excess in drinking. These men seek intoxication from bravado or as the inevitable result of conviviality. Often such customs can be followed without noticeable detriment to the man's labor. Cases on their second, third and even later arrests belong largely to this class.
>
> The accidental and occasional drunkards are cases commonly accounted responsible for their act. They are capable of refraining from intemperance when they so wish, and to that extent are willful. These two classes, which com-

prise the majority of individuals arrested for intoxication, are amenable to correctional treatment.

3. The habitual drunkard is one in whom intoxication is either frequent or constant. Medical experts show that, where drunkenness has become habitual, a predisposing cause is almost invariably traced in the mind or body of the patient. Drunkenness must in such cases be regarded as a disease, or as the form which certain illnesses take with certain patients.

The starting point of disease is often difficult or impossible to trace. The habitual drunkard cannot be sharply distinguished from the occasional drunkard. There is an intermediate group, in whom, through use of alcohol, a craving for that drug is developing. They drink not to satisfy the thirst, which water satisfies, but to fill a craving for either the immediate (stimulating) or remote (narcotic) influence of the drug alcohol. Continued use of alcohol, especially in large quantities, weakens will power and gradually destroys responsibility. In this borderland are cases who begin to show signs of abnormality—men ordinarily industrious, who let their business suffer through debauch; men ordinarily affectionate, who neglect their homes for saloon or club. They are habitual drunkards in the making.

Medical specialists in inebriety classify habitual inebriates as follows:

(a) The first group comprises men originally of normal health of mind and body, but who, through overwork, domestic or business troubles, coupled perhaps with poor hygiene, insanitary homes or poorly cooked and ill-chosen food, have lowered their power of resistance. With frequent indulgence in alcohol or drugs, self-control gradually has been destroyed, and the patient becomes powerless to discontinue his habit. The craving for narcotics (narcotamania) becomes all-absorbing. Under ordinary conditions he is unable to overcome the habit. Cases of this kind studied at the Foxborough State Hospital almost invariably have displayed further symptoms of mental abnormality. This is the most curable class of pathologic inebriates.

(b) The second group, whom physicians often treat apart, are the "periodic drunkards"—men ordinarily temperate, or even abstinent, who at periods some weeks or even months apart are seized with a mania for drunkenness, which may be continuous through a number of days. This period is followed by complete sobriety for weeks or months. This form of dipsomania, which is sometimes stimulated by willful drunkards, is more rare than other forms of inebriety, and is often classed technically as a variety of insanity.

(c) The last group comprises the defectives and degenerates among drunkards. Alcoholism of the patient or of his parents may in some of these cases have brought on directly or indirectly the low mental or physical condition. But it is equally true in other cases that imbecility, insanity or other forms of defectiveness or degeneracy have preceded and have been responsible for the excessive use of alcohol. The physicians in charge of the larger houses of correction and other institutions in Massachusetts to which drunkards are sent are inclined to assert that the large majority of habitual drunkards in their care are men of less than normal mentality. To this class must be added a considerable group of men past their prime of life, in whom the habit of drinking has intensified as the period of mental and physical decline (involution) has set in. Resistance in such cases is constantly lessened, and inebriety may become chronic. The reduction of mental power characteristic in all members of this group renders cure improbable.

There is another classification of drunkards which deserves to be considered apart. * * * This differentiates the criminal from the non-criminal drunkard. The inebriate who offends against the law by larceny, assault or any crime other than public intoxication may be found obviously among accidental, occasional or habitual drunkards. But the type of treatment which he should receive should be different from that of other members of the foregoing groups. Even among criminal drunkards, each case should be considered with reference to whether

the man is criminal during periods of sobriety or only during periods of intoxication. Among women drunkards also distinction should be made with regard to the morality of the case during periods of sobriety and intoxication. If a man or woman is criminal or immoral only when intemperate, the vice may be but a phase of the disease of inebriety, and curable with the cure of the original malady.

Obviously, the individual who inherits a craving for alcohol or other poisonous stimulants and inherits at the same time a lack of moral stamina enabling him to resist the temptation is eugenically as well as socially dangerous to the State. Such individuals are cacogenic and must therefore be prevented from contributing their traits to the new generation.

4. THE CRIMINALISTIC CLASS

From a eugenical point of view, there are two sorts of persons legally condemned as criminals. First, individuals who commit technical civil offenses, but whose instincts are social. Second, individuals who commit crimes against society on account of a lack of social morality. The second class of individuals are properly called criminalistic. If on them neither punishment nor moral precept has much effect, they are properly, then, classed as moral imbeciles and, as such, constitute a biological variety of the human stock. They are the individuals to be considered in this study, which seeks to cut off the supply of individuals innately anti-social. The following classification is based upon the nature of the crime rather than the nature of the individual. Yet there is a closer relationship between the two than would appear at the first inspection, for it appears to require a definite innate type of personality-complex to commit, in spite of punishment and efforts at reformation, the same offense naturally and continually and ofttimes almost irresistibly.

1. *Crimes Against Chastity.*
   a. Adultery.
   b. Fornication.
   c. Bigamy and polygamy.
   d. Incest.
   e. Prostitution.
   f. Seduction.
   g. Pandering.
   h. Sodomy.
   i. Beastility.

2. *Crimes Against Persons.*
   a. Slander.
   b. Assault.
   c. Extortion.
   d. Robbery.
   e. Rape.
   f. Homicide.
   g. Suicide.

3. *Crimes Against Property.*
   a. Malicious mischief and trespass.
   b. Petty larceny.
   c. Fraud.
   d. Embezzlement.
   e. Forgery.
   f. Grand larceny.
   g. Burglary.
   h. Arson.

4. *Crimes Against Public Policy.*
   a. Disorderly conduct.
   b. Drunkenness.
   c. Vagrancy.
   d. Truancy.
   e Incorrigibility.
   f. Perjury.
   g. Illicit liquor trade.
   h. Counterfeiting.
   i. Treason.

Havelock Ellis in "The Criminal" says:

> * * * Moreover, the attitude of society toward the individual criminal and his peculiarities must be to some extent determined by our knowledge of criminal heredity.
>
> The hereditary character of crime, and the organic penalties of natural law, were recognized even in remote antiquity. They were involved in the old Hebrew conception, which seems to have played a vital part in Hebrew life, of a God who visited the sins of the parents upon the children unto the third and fourth generation. We know also the story in Aristotle of the man who, when his son dragged him by his hair to the door, exclaimed: "Enough, enough, my son; I did not drag my father beyond this."

A biological, psychological, or genetic analysis of criminalistic persons better adapted to eugenic studies is up to the present time lacking. Socially these individuals are outcasts; biologically many of them are feeble-minded, but the precise manner in which selfish instincts, certain types of cunning and even ability, laziness, irritability, inborn love of cruelty, lack of inhibition, lack of social appreciation and other specific ancestral traits recombine in heredity to form a new criminalistic personality, remains to be formulated. The development of the genetics of the criminal is one of the pressing tasks of eugenics. Any one or any complex of these traits so highly developed as to prevent an individual from leading a normal and socially adequate existence, if such condition is hereditary, renders that individual cacogenic and places him under the ban of unfitness for reproduction. Before a given individual's line of heredity is cut off, it must be shown that such individual carries a hereditary taint—such as those just described—of danger to the race.

5. THE EPILEPTIC CLASS

Among degenerates epilepsy is so common that it deserves a separate classification under the anti-social group. Functionally this disease is often associated with feeble-mindedness, crime, inebriety and insanity, but, on the other hand, sometimes it is associated with sterling personalities of great social worth.

Epilepsy varies in degree, and, on this basis, an arbitrary scale could be elaborated. Such scale would take into consideration intensity of attack, duration of attack, exciting causes of attack, rate of convalescence, intervals between attacks, etc. Clinically, epileptics are classed under the following heads, depending upon the prevalent type of attack: 1, Grand Mal; 2, Petit Mal; 3, Mental Epilepsy.

No clearer cases of specific hereditary degeneracy than those of epilepsy have been established. Even when associated with sterling traits in worthy personalities, epilepsy is a deteriorating factor. When associated with other defects, they appear to be inter-accelerating causes of deterioration.

6. THE INSANE CLASS

There is no class of anti-social individuals more definitely and sharply marked off from the general social body, so far as their principles of conduct are concerned, than the insane class. With this class heredity plays an important part, and here again the basis of social classification is purely functional, while that of eugenics is heredity.

The very complexity of the functions of the nervous system insures the certainty of numerous kinds of nervous and mental disorders, and, although speaking in the very strictest sense, there are as many types of psychoses as there are insane persons, still mental disorders tend to follow definite directions. Dr. Wm. A. White, in his Outline of Psychiatry, says:

> It is the duty of the nervous system to see that the functions of the several organs are rightly timed and properly adjusted in relation to one another. This is the function of the lower nerve centres.
>
> The highest nerve centres of the cerebral cortex that constitute the physical basis of mind have quite a different function. Their duty is to so regulate and control the actions of the individual as to best serve his interests in his relations with his environment.

As with the feeble-minded, a classification based upon etiology and the degree of hereditary factors rather than one based upon social adequacy more nearly approximates the eugenic basis. The following classification is so based:

Insanity

1. Functional dementia.
    - a. Dementia præcox.
    - b. Manic depressive insanity.
    - c. Involutional melancholia.
    - d. Chronic delusional insanity.
    - e. Senile dementia.
2. Psychoneuroses.
    - a. Neuresthenia.
    - b. Hysteria.
    - c. Psychasthenia.
3. Psychoses following or accompanying organic disorders.
    - A. Nervous disorders leading to dementia.
        - a. Epilepsy.
        - b. Huntington's chorea.
        - c. Polyneuritis.
        - d. Multiple sclerosis.
    - B. Arterial disorders leading to dementia.
        - a. Apoplexy.
        - b. Arteriosclerosis.
4. Toxic Psychoses.
    - A. Caused by endogenously produced toxins.
        - a. Uremia.
        - b. Diabetes.
        - c. Gastro-intestinal disorders.
        - d. Thyroidal malfunction.
            - 1. Hypo-secretion—Myxoedema and cretinism.
            - 2. Hyper-secretion—Exophthalmic goitre.
    - B. Psychoses caused by infectious diseases.
        - a. Paresis.
        - b. Pellagra?
        - c. Hydrophobia and other acute infectious deliria.
        - d. Febrile delirium.
    - C. Psychoses caused by exogenously produced toxins.
        - a. Chronic alcoholism.
        - b. Pharmacomania.
5. Psychoses of exhaustion—Delirium grave.
6. Psychoses caused by brain tumor.
7. Psychoses caused by trauma.

The first group of psychoses above named is called functional because, if lesions accompany these mental disorders, they have not yet been discovered by the pathologist but, if the theory that every psychoses is based upon a neurosis becomes established, then the sharp line of demarcation between the organic and the functional psychoses disappears and, rather, one end of the scale represents the psychoses accompanied by gross lesions and the other that accompanied by the more minute lesions.

Dr. Wm. A. White, in his book above referred to (Outline of Psychiatry), says:

> * * * Mental processes, from their incidence in sensations to the release of the motor responses constituting conduct, are conceived to have as their physical substratum a continuous neural process. The process, although differently named in different parts of its course for convenience of designation, is a continuous one. * * * The standpoint of this new psychology is distinctly different from the standpoint of a few years ago. Until its development the attitude of the psychiatrist was that of the systematic biologist classifying the several cases into families, genera, species, but classifying upon the basis of the obvious symptoms only. The keynote of the new standpoint is its distinctly individualistic trend. * * * The so-called clinical types are not clean-cut entities, but are only groups of symptoms, which either seem to occur more frequently in combination or else have been more definitely and clearly seen because of that combination. In fact types as such may be said to be in the minority. The great mass of cases seen are combinations more or less intermediate in character. The conception of types in order to be accurate must be from a broadly biological viewpoint. Types are like species. They have innumerable transition and intermediate forms. * * * Insanity, therefore, is not a disease; it is rather a class of disorders, which tend to arrange themselves with greater or less distinctiveness into groups of reaction types.

In relation to practical eugenics a specific psychosis may be directly inherited as such, in which case the disease will appear in due ontogenetic sequence. Or its diathesis only may be transmitted. In some types, such as chronic alcoholism and paresis, heredity appears to be the foundation factor, but the poisons respectively of alcohol and of *treponema pallidum* must conspire with this defective background in order to produce the disease. So in the group of so-called functional psychoses there may be either a weak or strong diathesis—the one requiring a relatively great stress and the other a relatively little stress to bring on the ailment. To the extent that a given strain possesses a hereditary constitutional make-up liable to display a psychosis under anything less than an extraordinary formidable stress of circumstances, there exists in such strain a cacogenic variety of the human race.

As in the case of the feeble-minded and criminalistic, the personality of the individual is subject to great variation. It appears that practically every normal function is susceptible of disorder and the

extraordinarily numerous possibilities of combinations of traits, some normal and others perverted, make the total array of possible psychic conditions almost incomprehensibly great. Psychiatrists, however, have found that the commonest disorders tend to fall along certain definite lines and hence the possibility of classifying this sort of degeneracy.

7. THE ASTHENIC CLASS

The great bulk of the world's work is accomplished by strong and hardy individuals. It is true that great contributions have been made to civilization by physical weaklings, but this is rather the exception. Physical weakness, if hereditary, is cacogenic, for a race of weaklings cannot long endure. Physical weakness is not the menace that feeble-mindedness is, but it is, nevertheless, great. A logical classification of physical weaklings has not yet been made. This class includes individuals who are sane, are not feeble-minded, are not deformed and are not paupers, nor do they belong to any other of the socially inadequate groups, but still they lack constitutional vigor and stamina. Some of the older physicians refer to "tone" as a state of general weakness that appears to complicate all diatheses.

It might be possible to classify asthenic individuals in reference to the organs and tissues that are weak, such as individuals with weak bones or muscles, or with weak vital organs, such as lungs, arteries, stomach, or kidneys. Although not especially predisposed to any specific disease, yet they fall prey to almost any stressful circumstance, and the innate weakness appears to interfere with the full exercise of the normal function of mind and body in either physical or intellectual pursuits. "A sound mind in a sound body" is as much the motto of eugenics as it appeared to be the motto of the ancient Greeks. Hereditary physical inadequacy is cacogenic.

8. THE DIATHETIC CLASS

In regard to the diathesis or predisposition to a specific ailment or undesirable condition, the problem does not turn upon whether diathesis exists at all, but only to what degree and in what cases diathesis is a fact and to what degree it is injurious to the welfare of the race.

Hereditary traits do not date from birth, for birth is only a change of environment. The hereditary potentialities of an individual are determined past recall when the two parental gametes meet in fertilization to form the zygote.

By direct heredity is meant the transmission of a trait or a quality that will, in spite of controlled environment, appear at some time in the course of development of the individual. Thus the extra digit in polydactylism appears early during the second month of gestation. In children destined to be brown-eyed, the brown iris pigment appears during the first few days after birth. Normally, a child begins to shed his milk teeth at the age of about six years. With males, the beard appears in early manhood. Usually Huntington's chorea appears in tainted individuals at the age of approximately 50 years. All of these are traits of direct heredity. In these, heredity is the primary factor, environment has but little to do with them.

There is a second type of heredity, which might well be called "indirect heredity" or "heredity-diathesis," "susceptibility" or "predisposition." In this sort of heredity environment plays a much greater part in determining the human trait or condition than it plays in direct heredity, but even in such cases the exogenous forces are not all-important. Heredity is as it were the foundation upon which environment builds the trait. In such cases heredity, although a less powerful factor, is just as definite as with direct inheritance, and the end product is a composite of hereditary and extrinsic factors. Thus, people do not, biologically speaking, directly inherit tuberculosis and yet they inherit directly a constitutional make-up possibly both functional and chemical, as well as structural, that causes them to fall an easy prey to this disease. People do not inherit poisoning of the poison ivy (*Rhus toxicodendron*) type, still some persons are immune to the effects of this poison, while others readily become affected by it. Thus, in reference to their susceptibility and immunity, there appears to be a chemical difference in persons which is directly hereditary, but it requires the presence of an exogenous agent, in addition to the innate lack of resistance, to cause the affection.

Thirdly, there are many diseases and conditions in which the hereditary difference of people plays a very minor role or is entirely negligible as a causative factor, while environment plays the all-important part. Thus, everybody appears to be more or less susceptible to "colds," and possibly to the more infectious virulent infectious diseases such as rabies.

There are thus all degrees of the influence of heredity in determining a human condition. Let the following scale, beginning with absolutely no influence and ending with all influence, represent this fluctuation.

1. Gunshot Wounds. 2. Rabies. 3. Tuberculosis. 4. Decay of Teeth. 5. Old Age.	Purely environmental.	Exogenous forces overcome heredity.
6. Senile Graying of Hair. 7. Immunity to Ivy Poisoning.	Mixed hereditary and environmental—"diathetic."	
8. Insanity. 9. Imbecility. 10. Polydactylism.	Purely hereditary.	Heredity overcomes environment.

There is, thus, no sharp line between diathesis and direct heredity, on the one hand, and between diathesis and purely extrinsic influences, on the other. They appear to grade into one another.

Even within the same group of disorders, *e. g.*, insanity, there is a wide range in the relative roles of heredity and of extrinsic factors in the etiology of the disease.

The Twenty-third Annual Report of the New York State Commission in Lunacy (February 14, 1912) gives the following table, showing heredity in cases of admissions to the fourteen state hospitals for the insane for the year ending September 30, 1911:

A. *Psychoses with a high percentage of cases with family history of insanity or nervous diseases.*

Psychosis.	Percentage of cases with history of insanity, nervous diseases, etc.
Dementia præcox	59.2
Involution melancholia	61.6
Alcoholic	54.2
Allied to manic-depressive	56.7
Epileptic	60.2
Hysterical, psychasthenic, neurasthenic	61.9
Other constitutional disorders and inferiorities	57.8
Imbecility, and idiocy with insanity	58.5

B. *Psychoses with low percentage of cases with history of insanity or nervous diseases.*

Senile	41.7
Dementia paralytica	38.4
Infective-exhaustive and auto-toxic	41.7
Allied to infective-exhaustive	33.3
Paranoic conditions	46.1
Depressive hallucinoses	37.5

Excepting at the Kings Park and the St. Lawrence State Hospitals, none of the fourteen New York State hospitals for the insane maintains field workers for the express purpose of studying, in the home territories, the family histories of persons committed to their respective institutions.

The very cursory examinations into family histories, which are doubtless the best that can be provided with the present facilities—or rather lack of facilities—for such study, render it impossible to secure conclusive data from such records. "Heredity" without extended data for each specific case means but little. However, the result of the examinations recorded in this table are at least indicative of the true conditions, and are so evaluated.

If it can be established that some families and some individuals of the human race are by nature susceptible to specific diseases, while others are not, then there is a difference in the eugenic value of such families and such individuals.

A. *Species Difference*

There is no one who can doubt that the species differ in their susceptibility and immunity to specific diseases. Every hog breeder knows that hog cholera may destroy his whole herd, while the other animals of the same farm (including the owner himself), although doubtless infected, do not contract the disease. Other diseases, such as tuberculosis, affect men, cattle, and chickens, but apparently do not affect horses. The development of varieties of wheat and corn resistant to certain fungous diseases are among the greatest joint triumphs of modern breeding and agronomy. The immunity of the zebra and the susceptibility of the horse to the disease following the bite of the tsetse fly is a known fact.

Differential immunity in reference to species has ample and obvious data to support it. The determination of the degree of variation in immunity among races of the same species—in this case the human species—and among strains or families within these races and in turn among individuals of the same family is the problem that concerns this study.

B. *Racial Difference*

The following study in "Biostatistics of the Jewish Race Pertaining Especially to Immunity and Susceptibility," by Lester Levyn, M. D., of Buffalo, N. Y., is reprinted with his permission from the

New York Medical Journal of May 10, 1913. It establishes the racial differentiation in immunity:

The relative immunity to many contagious and infectious diseases and susceptibility to certain other infections (principally of a neurotic origin) possessed by the Jewish race present a field of study of a most interesting nature. The immunity can be traced as far back as the Talmudic periods, and well proved facts and statistics give evidence of its survival today. Why should the Jew, physically inferior to his Christian brethren, ward off with more potent factors the onslaught of disease and emerge from the conflict with a lesser mortality? Let us for a moment make a brief anthropological study of the Jew. His average height is 162.1 cm., span of arms 169.1 cm., girth around chest about 81 cm., making him the narrowest and the shortest of races. The skulls are chiefly brachycephalic, probably attributable to cerebral development. There is no race that appears less strong, and none that can so well resist misfortune. The reason for this is that in soul as well as in body, morally as well as physically, the Jew is the product of a selection that has lasted two thousand years, and has been the most severe and most painful which living beings have ever had to endure. In appearance, notably in the large Jewries of the East, he is small, puny, sickly, pale and shrunken, yet under this frail exterior is hidden an intense vitality. "The Jew may be likened to those lean actresses, the Rachels and Sarahs, who spit blood, and seem to have but a spark of life left, yet who when they have stepped upon the stage put forth indomitable strength and courage." Taking into consideration then the mode of life to which the race was so long subjected it is not strange that it should present peculiarities to the physiologist and statisician.

The first thing to attract our attention is the fact that the longevity of the Jew is greater than that of any other race. This is so well established that in certain countries, America for instance, the Jews are regarded by life insurance companies as especially desirable clients. Almost anywhere, particularly in those countries where the laws are not such as to render existence intolerable to them, the average duration of life among the Jews is considerably higher than that of adherents of other religions and faiths. This does not apply solely to countries where the Jews are largely of the well-to-do classes, but as well to the poor Jews of Germany, Hungary, England and Roumania. The United States Census Report states his "expectation of life" to be fifty-seven years, while that of his Christian brother is but forty-one years. The difference is visibly one of distinction.

We should not be justified, however, in regarding this superiority as a racial phenomenon of a purely physiological nature. It is doubtless due in large part to the difference in customs, to the family spirit of the Jews, to their devotion as parents, to the care of the mother for her children; and also to the chastity in the marriage relations; to the prescriptions of the law, and to the consideration and respect shown by the husband for the health of his wife. Much of the racial relative immunity to various diseases may be directly attributed to a strict adherence to the laws governing the Jewish faith, which embody rigid aphorisms on bodily and dietary cleanliness. Many of the fundamental laws of Judaism have for a nucleus hygienic principles. The early rabbinical teachings forbade eating the flesh of an animal that had taken poison, or the eating of meat and fish together, or drinking water left uncovered over night. The danger of drinking water at the beginning of the seasons was taught the people. In times of plague the rabbis advised the necessity of remaining at home and avoiding the society of men. It was forbidden to touch during a meal parts of the body, where perspiration was profuse, to eat from unclean vessels or with dirty hands, or to eat hearty meals before retiring. It is thereby seen that the Torah wished to make of Israel a people that should be healthy and holy, *sanus et sanctus.*

The laws concerning the preparation and selection of all flesh for food, scorned and ridiculed for many generations, are now regarded as important factors in the eradication of disease. In the slaughter houses the methods em-

ployed by the *shochets* in the selection of animals for consumption are worthy of mention. No animals are considered fit for food which show but the slightest evidences of illness or whose bodies in any way are wounded or injured. Such animals are branded unclean, and therefore unfit for food. True the sacrifice of such animals creates a monetary loss, but any sacrifice conducive to an increased resistance to disease and prolongation of life is one which the public will gladly suffer.

In enumerating the various diseases to which the race is comparatively and relatively immune, that which stands pre-eminently foremost on the list is tuberculosis. Unfortunately, advancing civilization, with its congestion of population and subsequent increase in ghetto life, is tending to diminish the extent of this immunity. Dr. Behrend says: "The comparative immunity from the tuberculous diathesis has been recognized by all physicians whose special experience entitles them to express an opinion." Despite the horrible ghetto environment statistics evidence a lesser extent of the disease than among other races, while in the better classes of Jews, not restricted by ghetto life, they are but rarely victims of the disease. Many factors peculiar to the race are instrumental to the production of this immunity. Lombroso considers the immunity to be in large part attributable to the fact that the vocations of the Jews require little or no exposure. Another important cause is the cleanliness of the housewives. Instead of resorting to extensive use of the dusting brush they utilize damp cloths in wiping all surfaces, by this means raising less dust and diminishing the risk of inhaling tubercle bacilli. Lastly, but of vast significance, is the fact that the body vitality is not diminished by excessive alcoholic indulgences.

The liability of the race to pneumonic infection is less than that of other races. Reasons for this are that their occupational pursuits are largely of a confining nature, and do not necessitate exposure to the vicissitudes of the weather. Of greater moment is the fact of the race being non-alcoholic.

Smallpox has a less marked affiliation for the race. This malady attacks the Jew far less frequently than the non-Jew. During the epidemic of smallpox of 1900-1903 it is remarkable to note that the race was virtually free from its ravages. The urgency and necessity for vaccination have always held sway among the Jews, they being strong supporters of the efficacy of vaccination, and the promptness with which they accede to it has established this freedom.

The existence of typhoid fever is somewhat less among the Jews than among other races, and the death rate from that disease is lower among them. For a period of six years in the city of New York the typhoid mortality rate was as follows: Germans, 28.01; Italians, 26.16; Irish, 25.56; English, 19.77; French, 18.29; Bohemians, 18.04; Armenians (white), 17.40; Hungarians (mostly Jews), 12.36; Russians and Poles (mostly Jews), 9.19.

The racial resistance to intestinal disorders is far greater than that of other peoples. In the city of New York, in the most densely populated Jewish settlement, where 80 per cent. of the inhabitants are of that faith, an analysis of the statistics of the Department of Health shows that for a period of ten years diphtheria and croup killed 5 per 100,000 less than among the Christian race. Bearing in mind the low morality of urban Jews, remembering the admirable conditions for the spread of infection prevalent in the East Side, knowing the congestion, the poverty, the miserably ventilated sweatshops, the never-ceasing toiling, can we place belief other than in their wonderful powers of resistance!

The low mortality is not confined to the adults of the race, but applies to infants as well. The enjoyment of a lower infant mortality is traceable to the deeper devotion bestowed in the children by parents, and the fact that weakened vitality due to alcohol and lues is not inherited. The precocity of the Jewish mind and the rapidity of mental growth are also largely due to this abstemiousness.

The number of stillborn children is much smaller among the Israelites than others, and there are notably fewer illegitimate births.

The prevalence of venereal disease is not nearly as widespread as is seen in others. The ancient and ever present custom of circumcision is the main contributing factor to this absence, enhanced by generations of culture, suffering

and tribulations, which have placed the senses under the rule of reason. The race stands today as the least carnal of all.

While the race enjoys this relative immunity to many diseases, it is not to be envied in every respect, for there remain afflictions which seem particularly prone to attack the Hebrew. Especially noteworthy of mention are maladies of the nerve centres, cerebral and spinal diseases and diabetes mellitus. The latter occurs from two to six times more frequently among Jews than among non-Jews. Strangely, while the disease exhibits such a marked predilection for the race, it is better endured than among other races. Von Noorden states that patients with glycosuria lasting for years, without much discomfort, die from what is supposed to be heart failure. Death through coma is more commonly seen in the Jew (Stern). With our present knowledge of the etiology of diabetes mellitus the only reasons offered for the predisposition of the race to the disease are the nervous theories, together with such contributing factors as sedentary habits, lack of exercise, high living and overfeeding.

Of the nervous disorders, hysteria and neurasthenia affect the race most frequently. The causes commonly assigned are: (1) The fact that they are largely town dwellers, these functional nervous diseases being common to the population of a great city; (2) neurasthenia is seen mostly among the commercial classes, bankers and speculators, of whom the Jews comprise a great proportion. However, those of the poorer classes, laborers and artisans, are not exempt; (3) consanguineous marriage was at one time a reason offered, but the more modern views that such marriages when contracted between healthy individuals are not at all detrimental to the health of the offspring contradict this theory; (4) the repeated persecutions and abuses to which the race has been subjected; (5) such massacres as occurred in Kishineff, in 1903, were of frequent occurrence in the Middle Ages, and their effect on the nervous system of the race could not be other than a rigorous one, transmitted hereditarily; (6) the excessive mental and intellectual tax demanded to overcome and outspread environment.

While these conditions rarely, if ever, cause death, yet they exert a most harmful tendency. Kraft-Ebing states: "Neurasthenia and other nervous diseases affect the Jews with exceptional severity."

Amaurotic idiocy and the Mongolian type of idiocy are frequently observed among Hebrews. The causes again advanced are referable to neurotic taints. Marriages of those of near kin have been considered a prominent cause for the prevalence of idiocy in the race, but statistics do not bear out this contention. "It appears that the proportion of idiotic children who are the offspring of cousins is not in excess of the ratio of consanguineous marriages to marriages generally, and the sole evil result of such marriages is the intensification in the offspring of some morbid proclivity common to both parents." In summarizing, it may be said that the race suffers chiefly from the functional nervous diseases, and that the organic nervous degenerations such as locomotor ataxia and progressive paralysis of the insane are uncommonly seen. Minor states that serious organic diseases of the brain and spinal cord are less frequently met with among Jews than among others.

Apoplexy is another affliction which attacks the Jew with a great degree of frequency. Lombroso attributes the connection to the racial temperament of emotion, struggling with adverse conditions and the persecution of centuries.

Diseases of the heart and circulatory system are more common in Jews, in the United States being double that of the general population. Articular rheumatism so frequently seen in the race is an important etiological factor in the production of organic heart disease. Arteriosclerosis also prevails largely among members of the race, owing to excessive activity, worry and care. Intermittent claudication attacks the race more often than others, which condition is possibly due to the prevalence of arteriosclerosis.

The proportion of blindness is greater among modern Jews than among non-Jews. In America, however, this does not hold true, owing to the stringency of the immigration laws, which prevent the entrance of defective classes, including the blind. Considering the etiology of blindness it might be expected that the

affliction should attack the race less than others. The most important cause of blindness in the new-born from 30 to 50 per cent. of cases is gonorrhea infection from the mothers. It is a well-known fact that gonorrhea is comparatively rare in Jewish women. Conceding this it would be reasonable to think that Jews would have at least 25 per cent. less blindness than non-Jews. In spite of this the condition is common to the race. Consanguinity, careful investigators contend, is not a factor in the production of blindness, apart from heredity. Trachoma, glaucoma and diseases of the cornea and uveal tract are largely seen in the race, all of which conditions may lead to blindness.

It is most interesting to note that suicide in the race appears to be less common than among others. Among ancient Hebrews but few cases are recorded, only four cases being specifically mentioned in the Old Testament, those of Samson, Saul and his arrow bearer, and Ahitophel. Later it appears to have occurred with greater frequency. Josephus records the suicide of several thousand Jewish soldiers who were besieged by the Romans in the stronghold of Masaden in the year 72 or 73 A. D. During medieval periods of persecution the Jews often chose self-destruction as a means of relief. In modern times the Jews are less liable to suicide. It is generally known that suicide is on the increase in most of the European countries as well as in America. Marselli explains this increase as due to the effects of "that universal and complex influence to which we give the name 'civilization'." Yet, notwithstanding this pressure, the Jew at present rarely resorts to self-destruction. Among non-Jews about one-third of all suicides are directly or indirectly attributable to abuse of alcoholic beverages, and the paucity of such cases in Jews is again explained by their abstemiousness.

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C. *Family and Individual Differences*

Besides the species and racial differences, there is also a family or strain difference and lastly within the fraternity an individual difference in natural susceptibility to a specific disease. The following case and family histories were selected by Dr. A. J. Rosanoff from his histories to illustrate these facts.

The first history is that of a family characterized by *manic-depressive* insanity, in which family many of the individuals appeared to break down *almost independently of exogenous causes.* In the second family there is a nervous tendency, but, compared to the first family, they are quite stable. In an affected individual of this second

family it required a *great array of formidable exogenous causes* to bring about this disease.

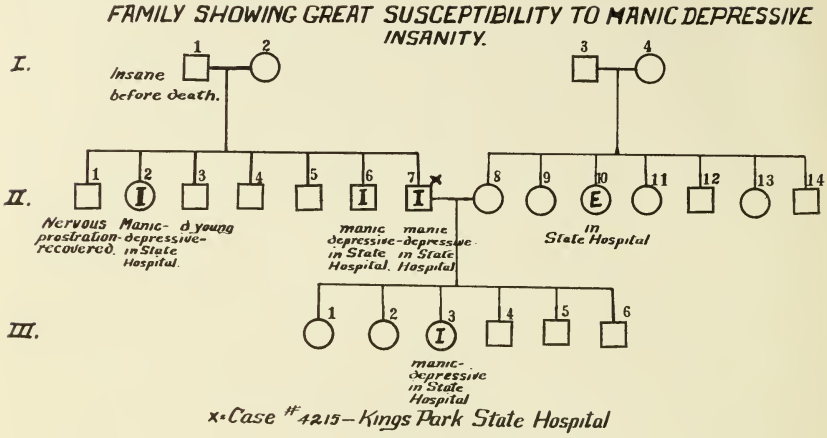


FIG. No. 5

Family history:

II-7. 2678-6624. Admitted Dec. 20, 1905—53 years. First attack 20 years ago, 1885 (at 33 years). Was in Bloomingdale for two months, has had several attacks since. Present attack, commitment paper says: "Wishes to use the telephone to speak to Mr. Ryan and others with whom he has important financial engagements. Said that he went into business in Wall Street three months ago without a cent and now is worth $2,000,000; that his present incarceration is due to a conspiracy of his wife and certain financial people, who are afraid of his power, fear he will ruin them." On admission: "Said he was glad to be sent here, that he was of a happy disposition and could get along any place." Exceedingly irritable when questioned; shows distractibility and flight. May 7, 1906: "Quiet and composed." June 11, 1906: "Discharged as recovered." Readmitted April 29, 1910: "Elated, said he was perfectly contented with life." "Could draw a cheque for any amount, which would be immediately honored at any of the banking houses in New York City. His influence is so great that, should he enter any broker's office, he could immediately cause a rise or precipitate a fall of stock on the market by purchasing it for a rise or a fall." "Restless, does not sleep at night." June, 1910: "Noisy, destructive and mischievous; tears clothing, breaks plaster, etc." "Urinated and defecated on the floor of his room and threw fæces out on the hall." July, 1910: "Today climbed water leader in courtyard and escaped to roof of cross hall; was gotten down by charge nurse." Oct. 2, 1910: Died of dysentery. Patient had graduated from C. C. N. Y. Said he was not a good student, because he was always mischievous, never inclined to study.

II-6. 2676. Admitted Nov. 6, 1905. First attack 20 years; was at Blackwell's Island in 1862. "Many previous attacks." On admission: "Great depression and agitation, cried, stated he was justly punished for all the sins of his past life." "I will be lost and damned; I am more than an outcast; my friends do not recognize me or care for me; there is no worse sinner on earth; if I was ground up into smoke I would not think that I had been punished enough." Jan., 1906: "Failing physically, now confined to bed, as he is too feeble to be up and around." "Questions had to be frequently repeated, and after long pauses he answered in a barely audible tone of voice." Oct., 1906: "Constantly picks at his ears and hands." Nov. 3, 1906: "Died."

II-2. 2882-4427-30067. Admission May 8, 1906—29 years. First attack in 1894 (age 29 years) was at Amityville. Second, third, fourth and fifth attacks between 1895 and 1904 at New Jersey State Hospital, Morris Plains, N. J. Sixth attack: Admitted to K. P. May 8, 1906: "Laughs and talks incessantly for hours at a time. Sleepless for the past five nights; spends sleepless nights singing and talking wildly for hours at a time." May 25, 1906: "Assaulted night nurse; kicked her in the stomach and pulled her hair." Nov. 21, 1906: "Cheerful, agreeable, industrious." Aug. 25, 1907: "Discharged as recovered." Seventh attack: Admitted to K. P. Nov. 20, 1907: "Would lie in bed all day without excuse; has been delirious and wild." On admission: "Elated, very loquacious, showing distractibility and flight of ideas, restless, very erotic, making obscene suggestions and remarks." Jan., 1908: "Improved, works in embroidery class." March, 1908: "Disturbed, noisy, threatening." June, 1908: "Quiet, neat, industrious." March, 1909: "Paroled." Sept., 1909: "Parole extended." Nov. 22, 1909: "Returned from parole by two attendants, resisted and caused much trouble en route." April, 1910: "Disturbed, receiving paraldehyde." Oct. 25, 1910: "Paroled." April 24, 1911: "Parole extended." June 15, 1911: "Returned from parole; somewhat confused; careless, untidy, indolent." Aug., 1911: "Disturbed, restless, untidy." Nov., 1911: "Much improved, very industrious, doing fancy work, cheerful." Dec. 21, 1911: "Paroled." June 18, 1912: "Parole extended."

II-10. 6295-44746. Admitted Jan. 5, 1910—62 years. "Has had epileptic convulsions since she was in her 'teens.'" Commitment paper: "Patient sad; at times she has thought she saw her parents and others in their heavenly home." "At times she is very irritable and abusive." Jan. 31, 1910: "Three convulsions since admission." "Thinks her aunt, who died some time ago, will meet her when she is called home by Jesus Christ, her Blessed Savior." March, 1910: "Screams if assisted at dressing, going to and from meals, etc. Says everyone is trying to kill her." Aug., 1910: "Neat, tidy, clean, industrious, assisting with the mending." Sept., 1910: "At times thinks she hears God's voice. Reads her Bible a great deal." March, 1911: "Irritable, childish, easily excited. At times very noisy and yells. Convulsions at irregular intervals."

III-3. 2125-2769-4215-16424. Admission Oct. 27, 1904—19 years. First attack 1898 (age 19): "Despondent, wept, conversed but little, slept poorly, appetite was not good, heard strange voices; was three months in sanitarium; recovered." Second attack 1900: "Again despondent; three months in sanitarium; recovered." Third attack 1901: "Again despondent; five months in sanitarium; recovered." Fourth attack: "Same; in sanitarium six months; recovered." Fifth attack began Oct. 15, 1904: "Downhearted, laughed to herself, wept, talked to herself, slept and ate poorly, imagined people were in her room, heard strange voices; remained in one place for hours taking no notice of anything; then became disturbed, destructive, and violent and was committed to K. P." On admission: "Depression, retardation in movements and speech, difficulty in thinking; thinks she is dead." June 14, 1905: "Discharged as recovered." Sixth attack admitted to K. P. March 15, 1906: "Patient said she quarreled with her mother; does not sleep well nights; she hears noises and voices; at times she is so depressive that she has thought of killing herself; was restless." July, 1906: "Filthy in habits, requires to be dressed and undressed, destroys her clothing, exposes her person." Feb., 1907: "Discharged as recovered." Seventh attack, admission Aug. 10, 1907: "Boisterous, says her mother is a damned fool; says all the time she wants to get married; at times extremely erotic and obscene; often says, 'Oh, I am going out of my mind, I know I am, I can't control myself.'" Nov., 1907: "Says she is so restless that she cannot keep still." Feb., 1908: "Very stupid and untidy; has to be dressed and undressed; when addressed will not converse; retarded in movements, but shows no depression." March, 1909: "Destructive, noisy and violent." Nov. 9, 1911: "Has shown steady improvement; is less irritable; industrious and interested in ward activities." Paroled Nov. 12. March 30, 1912: "Returned from parole; patient was restless both day and night; interested in every man that passed the house."

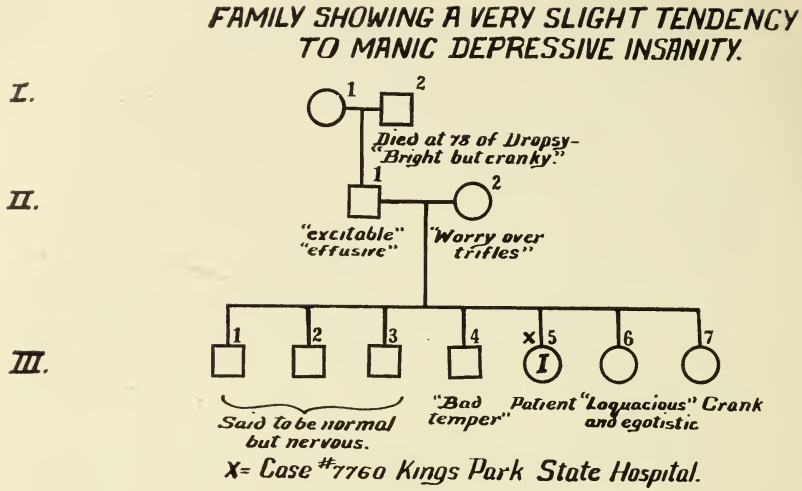


FIG. No. 6

Family History. Paternal grandmother (I, 2) died at 78 years of age of dropsy; she was bright, but cranky; would often scold her son for no cause; was emotional, had strong unreasonable likes and dislikes; was more fond of her other children than of her son (II, 1) (patient's father), who kept her when she was old until she died. Father (II, 1) is excitable, emotional, rather effusive, becomes lacrimose when speaking of his father, who died many years ago. Mother (II, 2) is normal, but is said to be somewhat inclined to worry over trifles. One brother (III, 4) has "a bad temper," abused his younger sisters; eloped and married at the age of 19 years, and has kept away from the family ever since. One sister (III, 6) is loquacious and egotistical. Another is more or less "nervous" and "excitable."

Personal History. Psychosis allied to manic-depressive insanity. Age 28. Admitted May 27, 1911, ———. *The conditions which brought about the psychosis were truly formidable.* The patient, a young woman, of excitable, emotional and rather unstable stock, described as cranky, hot-tempered and stubborn in disposition, becomes involved in a love affair followed by an engagement at the age of 23 years. During the engagement period she reluctantly permits her fiancé to have sexual relations with her, and during the same period she discovers in him disagreeable and repulsive traits, but at the end of a year marries him in spite of her repulsion, feeling that it is "too late to back out." Her married life is unhappy. The husband turns out to be a selfish, inconsiderate and jealous man; he supplies her with money very stintingly, though he goes out, plays cards, stays out evenings; he prevents her from having any diversions and objects even to her visiting her own relations. She desires children, but the husband does not, and she is deprived of sexual gratification owing to the precautions taken to avoid impregnation. About a year after marriage, after a quarrel on account of her going out to visit her folks, her husband leaves her. At the end of a week "her pride is broken" and she goes to his place of business to beg him to return. Friction between them continues, and two years later he deserts her again. Though she begs him to return he refuses. She becomes depressed, discouraged, develops self-accusations; suffers much from insomnia and loss of appetite and becomes much run down physically; then she grows very irritable, has occasional agitated tantrums; later begins to think people are watching her and taking snapshots of her to obtain evidence to be used by her

husband in a suit for divorce; finally she makes several suicidal attempts and is committed.

Patient was born in New York on Nov. 20, 1883. In childhood had measles, but otherwise had been physically well. She went to school at the age of 8 years and left at 17, having reached the fifth grammar grade; she did not get along well in her studies, was left back several times, but her failures were attributed to disinclination to study and not to dullness; her attendance was regular. After leaving school she stayed at home and did housework.

Patient describes her own disposition as sociable, but cranky and easily irritated and "soft," that is to say, easily moved to tears when her feelings were hurt. Was rather fond of going out. Occasionally read a newspaper, but very seldom any novels.

Physically she was evidently somewhat run down; weighed 115 pounds—her usual weight being 130 pounds. She had frequent crying spells; she never thought she would land in a place like this. During the first two or three months following her admission her condition improved slightly, as her listlessness and bewilderment disappeared. She cooperated better in medical examinations and was found to be well oriented, showed a normal grasp of her surroundings and a good memory of recent and remote occurrences. She continued, however, to have crying spells and even tantrums of agitation; said she wanted to die, etc. From time to time she would express delusional ideas, which were, however, rather in the shape of suspicions and conjectures, and not well-established delusions. Thus she thought that her husband had been the cause of insanity, not in her case alone, but also in the case of some other patients here. She thought also that he had people here spying on her in order that they might obtain evidence for a suit of divorce. She believed that many people here knew of her disgrace and humiliation, and that they talked about her. At one time she expressed the idea that her sister and parents wanted to be rid of her. as she had caused them so much trouble.

She improved, however, gradually. In the latter part of September, 1911, she weighed 135 pounds. She was more composed mentally and more rational. She now (October, 1911) employs herself in making baskets.

In November, 1911, though not yet recovered completely, she was discharged into the custody of her relatives at their request. Some weeks following her discharge she wrote a letter to the hospital stating that she was again living with her husband and that she was feeling entirely well.

These two family histories justify the statement that there is a difference in families in reference to their innate resistance to manic-depressive insanity. In the first family the disease might almost be said to be inherited, so surely was the trait to appear; in the second family it is quite clear that there is not a direct inheritance of this disease, but there is, nevertheless, a specific predisposition or diathesis to it.

To summarize—the factors of heredity and environment are constantly interacting to bring about end results in human as well as in plant and animal characteristics. No useful purpose is served either by eugenists or by humanitarians in striving to claim for the one or the other of these forces the all-important role in human affairs. One might as well contend that the sodium plays a more important part than chlorine in the organization and characteristics of common salt. Truth, not victory for an object of especial solicitude, should be sought.

We should be content to determine the relative influence of nature and nurture in selected cases or groups of related cases. In those wherein heredity is demonstrated to be the prime factor, the control of heredity should be the means used by society in controlling the qualities so determined. It is the business of eugenics to seek out such instances and to develop a practical method of control. It is the business of education, medicine, humanitarianism and other environmental or euthenical agencies to find out to what extent and how the hereditary qualities of individual human beings can be directed along desired channels and to exert every possible effort in so directing them. The one concerns educability; the other education.

9. THE DEFORMED CLASS

The extent of hereditary ailments in the human race is extremely great. The more complex the organism or machine, the greater the likelihood that it will develop a serious defect. The human organism is the most complex of all and, for each functional trait, there is doubtless a complex structure susceptible of defects and variations tending to follow certain set lines, upsetting the essential functioning and more or less handicapping the entire organism. Organic progress seems to have been effected by the "rouging out" of individuals possessing in their make-up unfit traits. Nature has been fully as ruthless in her processes of eliminating physical deformity as in striking down the possessor of mental feebleness. The more grossly deformed individuals such as *acephalus* ("freaks" or "monsters" as they are sometimes called) are not in themselves cacogenic, for they are either cut down early in ontogenesis, or, if permitted to live, they are incapacitated for parenthood. If such individuals could reproduce, many of their traits would doubtless be hereditary, but as such defects are serious enough to cause death before the reproductive age or to prevent reproduction, such deterioration has so overdone itself that the excess acts eugenically. The following table excludes these so-called monsters because not they, but the stock that produces them, is cacogenic. At this juncture, it is again opportune to call attention to the fact that it is the border-line defect that is most cacogenic, for it is a hereditary defect that can, with the aid of a kindly civilization, be bolstered up into a semblance of social fitness and then encouraged, and often enabled thereby to propagate its kind.

A deformity is a variation from the ordinary or normal structure that interferes with the normal functioning of the organ, and, conse-

quently, handicaps or incapacitates the individual possessing it. So close is the relation between structure and function that deformity in its more general sense can be made to include at least the basis of all human ailments. The following table outlines this view:

Deformities

1. Gross morphological.
    1. Patent, *e. g.*, Hare-lip.
    2. Latent, *e. g.*, Ectopia cordis.
2. Histologico-chemical, *e. g.*, Color blindness and Hæmophilia.

For the purpose of this study, however, the term "deformity" is limited to gross morphological defects. The following table gives in logical array a list of the principal types of gross patent deformities that are known to be hereditary and hence cacogenic:

Congenital External Deformities

1. General.
    A. Dwarfs.
        1. Ateleiosis (Little man).
        2. Achondroplasia (Premature ossification of bones).
        3. Rachitic dwarfs.
        4. Cretinoid dwarfs.
    B. Giants.
        1. Geants infantiles (Great size with infantile somatic and psychic traits).
        2. Acromegalic giants.
    C. Mongoloids.
    D. Sex-deformities.
        1. Hermaphroditism—many combinations of different degrees of male and female elements.
        2. Sex hypoplasia in male (Eunuchoidism).
        3. Sex hypoplasia in female.
2. Hair and Skin.
    1. Hypertrichosis.
    2. Hypotrichosis.
    3. Absence of nails.
    4. Albinism.
    5. Melanism.
    6. Xanthism.
    7. Lentigo.
    8. Icthyosis (several varieties).
    9. Thickening of outer layer of skin.

3. Head.
   A. General.
      1. Microcephaly.
      2. Hydrocephaly.
      3. Stigmata of degeneration.
   B. Mouth and Lips.
      1. Hare-lip.
      2. Cleft Palate.
      3. Congenital hypertrophy of lips.
      4. Macrostoma.
      5. Microstoma.
      6. Absence of teeth.
      7. Third dentition.
      8. Supernumerary teeth.
4. Neck.
      1. Cervical auricles.
      2. Wry neck (Torticollis).
      3. Cervical ribs.
5. Trunk.
   1. Vertebral deformities.
      1. Increase in number.
      2. Deficiency in number.
      3. Synostosis.
      4. Spina bifida.
      5. Spinal curvature.
   2. Ribs.
      a. Fusion of ribs.
      b. Suppression of ribs.
      c. Increase in number.
   3. Scaphoid Scapula.
   4. Congenital deficiency of clavicle.
   5. Congenital elevation of scapula (Sprengel's shoulders).
   6. Absence of pectoral muscles.
   7. Funnel chest (Pecus excavatum).
6. Extremities.
      1. Absence of radius.
      2. Absence of ulna.
      3. Club-hand.
      4. Brachydactylism.

5. Syndactylism.
6. Polydactylism.
7. Ectrodactylism.
8. Rudimentary or absent patella.
9. Congenital genu recurvation.
10. Congenital curvation of legs (lateral).
11. Absence of tibia or fibula.
12. Club-foot (Talipes).
13. Congenital dislocation of the hip.

Eugenics is concerned with physical fitness no less than with mental and moral adequacy, for a race cannot long endure and rise in culture unless its members be strong and dexterous physically. Mate selection has always been and doubtless always will be greatly influenced by patent personal physical fitness and comeliness; it is a determining factor of high value. Following the growth and diffusion of knowledge concerning the hereditary nature of physical defects, hereditary physical potentialities will also become assets in selection. Thus eugenical education influencing mate selection on a nation-wide scale must be depended upon to stamp out physical deformity when it is not associated with mental or with moral unfitness; when it is so linked segregation, supported, if need be, by sterilization, appears to be the proper eugenical remedy.

10. THE CACÆSTHETIC CLASS

Social adequacy depends so much upon the proper functioning of the organs of special sense that individuals suffering from their absence or their deformity are properly considered as one of the primary groups of the socially inadequate. The organs of special sense are very intricately constructed and hence subject to a correspondingly numerous and serious group of disorders.

The following classification of hereditary defects of the sense organs is based upon anatomical defects, which in turn destroy or pervert normal function:

I. Eye.
   1. Microphthalmus (including anophthalmus).
   2. Megalophthalmus.
   3. Atrophia Nervi Optici.
   4. Retinitis Pigmentosa (including hemeralopia).

5. Color Blindness.
6. Glaucoma.
7. Cataract.
8. Ectopia Lentis.
9. Degeneration of the cornea.
10. Nystagmus.
11. Ophthalmoplegia (including ptosis and squint, which latter is also called strabismus or cross-eye).
12. Aniridia (including colobomba).

II. Ear.

1. Rudimentary development of tympanic cavity.
2. Absence of tympanic membrane.
3. Absence of ossicles.
4. Absence of lanima spiralis.
5. Displacement of Reissner's membrane.
6. Mucus vegetation of connective tissues.
7. Absence of organ of corti.
8. Too few ganglionic cells in spiral canal.
9. Too few nerve fibres in modiolus.
10. Atrophy or failure of auditory nerve.
11. Ankylosis of ossicles.
12. Obliteration of tympanic cavity by bony exostosis, mucus or connective tissue.
13. Formation of bone in tympanic cavity.
14. Vestibular windows filled with bone or connective tissue.
15. Formation of bone or connective tissue in aqueductus cochlea.
16. Atresia by bone or connective tissue of external canal.

III. Defects in the organs of taste, smell and touch are less clearly defined than those of sight and hearing, because doubtless of their less specialized constitution.

Each of these more generalized senses, however, appears to be affected with a diminution of sensitivity and in others with a hypersensitive functioning. In still others there appears to be a perversion of a lack of trueness in their functioning, however, and in what manner such variations are hereditary has not yet been made clear by pedigree studies.

Many individuals belonging personally to the socially unfit classes are not cacogenic because their conditions have been caused primarily

by extrinsic agencies rather than by innate heredity. Thus, with the blind, a large percentage—from 20 per cent. to 40 per cent.—are known to have lost their sight by the easily preventable *ophthalmia neonatorum.* Many individual persons legally counted insane are so, not because of heredity, but because of some extraordinary harshness of circumstance. It is known beyond dispute that many cases of mental defects and physical deformities are caused almost entirely by disease or injury to persons of sound constitution. Such cases should be charged largely to the fault of environment and not to that of heredity. There is much personal and social salvage in them, and a solicitous social order can well afford to lend them personal aid and to help them rear their families. Such individuals, although both personally and socially inadequate, are, because of the persistency of ancestral germ-plasm and the falsity of the doctrine of the transmission of acquired traits, not cacogenic, and for the purposes of this study are not, therefore, to be considered as proper subjects for eugenical segregation, much less for sterilization. Eugenics concerns only innate qualities. It is therefore the task, not of eugenics, but of education, preventive medicine, mental hygiene, sex hygiene, movements for the conservation of vision, for the prevention of industrial accidents, and for similar agencies to protect the members of society from socially inadequating forces, and for the medical and philanthropic sciences to treat individuals who, in spite of these preventative agencies, do fall the victim of crippling forces.

CHAPTER III.
SUGGESTED REMEDIES.

In a study of this sort it is proper carefully to consider each of the several different remedies which have been proposed or suggested or which appear as possibly efficacious for purging from the blood of the race the innately defective strains described in the previous chapter. The following list is a catalog of such agencies.

1. Life segregation (or segregation during the reproductive period).
2. Sterilization.
3. Restrictive marriage laws and customs.
4. Eugenical education of the public and of prospective marriage mates.

5. Systems of matings purporting to remove defective traits.
6. General environmental betterment.
7. Polygamy.
8. Euthanasia.
9. Neo-Malthusianism.
10. Laissez-faire.

Which of these remedies shall be applied? Shall one, two, or several or all be made to operate? What are the limitations and possibilities of each remedy? Shall one class of the socially unfit be treated with one remedy and another with a different one? Shall the specifically selected remedy be applied to the class or to the individual? What are the principles and limits of compromise between conservation and elimination in cases of individuals bearing a germ-plasm with a mixture of the determiners for both defective and sterling traits? What are the criteria for the identification of individuals bearing defective germ-plasm? What can be hoped from the application of some definite elimination program? What practical difficulties stand in the way? How can they be overcome? These and other questions arise. It is therefore, the purpose of this investigation to study in the light of first-hand knowledge these problems, and to present the results of its work to the public in order to aid in some degree society's efforts to work out a practicable program for effecting the desired ends. The following studies of this committee appear to justify the following attitudes respectively toward each of the several proposed or suggested remedies:

(1.) *Life segregation* (or segregation during the reproductive period).

This remedy must, in the opinion of the committee, be the principal agent used by society in cutting off its supply of defectives. Defectives must be, and with continually finer discrimination are being, segregated from the general mass of society; and it will require but little modification from the present custodial systems in effecting the eugenical end as well as protecting the immediate present-day society from the socially inadequate individual, and administering to the latter's most pressing needs.

(2) *Sterilization.* Among the students of the eugenical status and movement of mankind there is a wide range of opinion as to the extremity to which society itself should go in applying sterilization, and concerning the part this remedy should play in relation to other remedial agencies. It would be possible theoretically to sterilize whole-

sale those individuals thought to carry defective hereditary traits, and thus at one fell stroke cut off practically all of the cacogenic varieties of the race. On the other hand, belief in the efficiency of natural selection under existing social conditions is held by some. Between these two extremes what effective and practicable working basis can be found?

In the program proposed by the committee *sterilization is advocated only as supporting the more important feature of segregation* when the latter agency fails to function eugenically. The relation between these two agencies is automatic, for it is proposed to sterilize only those individuals who, by due process of law, have been declared socially inadequate and have been committed to State custody, and are known to possess cacogenic potentialities. The committee has assumed that society must, at all hazards, protect its breeding stock, and it advocates sterilization only as supplementary to the segregation feature of the program, which is equally effective eugenically, and more effective socially.

(3) *Restrictive marriage laws and customs* will have but little effect upon the socially inadequate classes. This is amply demonstrated by Davenport in Bulletin Number Nine of the Eugenics Record Office: "State Laws Limiting Marriage Selection Examined in the Light of Eugenics." For persons of sound mind and morals, but suffering from severe hereditary handicap, these remedies will be efficacious; but individuals are given the designation "socially inadequate" because, among other reasons, they are not amenable to law and custom.

(4) *The eugenic education of the public and of prospective marriage mates* must become an active force in American social life, else no eugenics program looking ultimately toward cutting off the supply of defectives or favoring fortunate marriages and high fecundity among the favored classes can be carried out. Individuals possessed of a fine mentality and high moral sense are amenable to law and custom and, in a large measure, govern their conduct in consonance with the advance of scientific knowledge. The basis of progress is the growth and diffusion of knowledge. Faith in the development of the eugenics program is based upon faith in this principle.

For certain classes of individuals with hereditary defects, who withal are educable and are susceptible to social influences, eugenical education rather than compulsory segregation or sterilization appears to be the proper method for society to employ in cutting off their lines of descent. As an illustration of this the following is quoted from an

address delivered by Dr. Alexander Graham Bell to the deaf-mute members of the Literary Society of Kendall Green, Washington, D. C., March 6, 1891:

I think, however, that it is the duty of every good man and every good woman to remember that children follow marriage, and I am sure that there is no one among the deaf who desires to have his affliction handed down to his children. You all know that I have devoted considerable study and thought to the subject of the inheritance of deafness, and if you will put away prejudice out of your minds, and take up my researches relating to the deaf, you will find something that may be of value to you all.

We all know that some of the deaf have deaf children—not all, not even the majority—but some, a comparatively small number. In the vast majority of cases there are no deaf offspring, but in the remaining cases the proportion of offspring born deaf is very large, so large as to cause alarm to thoughtful minds. Will it not be of interest and importance to you to find out why these few have deaf offspring? It may not be of much importance to you to inquire whether by and by, in a hundred years or so, we may have a deaf variety of the human race. That is a matter of great interest to scientific men, but not of special value to you. What you want to know and what you are interested in is this: are you yourself liable to have deaf offspring? Now, one value in my researches that you will find is this: that you can gain information which will assure you that you may increase your liability to have deaf offspring or diminish it, according to the way in which you marry. * * *

He then quoted statistics which he had gathered at great expenditure of time and effort concerning the outcome of marriages among congenitally deaf persons, and continued:

Persons who are reported deaf from birth, as a class, exhibit a tendency to transmit the defect; and yet when we come to individual cases we cannot decide with absolute certainty that any one was born deaf. Some who are reported deaf from birth probably lost hearing in infancy; others reported deaf in infancy were probably born deaf. For educational purposes the distinction may be immaterial, but, in the study of inheritance, it makes all the difference in the world whether the deafness occurred before or after birth. Now, in my researches, I think I have found a surer and more safe guide for those cases that are liable to transmit the defect.

The new guide that I would give you is this: Look at the family rather than at the individual. You will find in certain families that one child is deaf and the rest hearing, the ancestors and other relatives also being free from deafness. This is what is known as a "sporadic" case of deafness—deafness which affects one only in a family. * * *

The statistics collated by me (Memoir, p. 25) indicate that 816 marriages of deaf-mutes produce 82 deaf children. In other words, every 100 marriages are productive of 10 deaf children. That is a result independent of the cause of deafness—an average of all cases considered. * * *

Now, the point that I would impress upon you all is the significance of family deafness. I would have you remember that all the members of a family in which there are a number of deaf-mutes have a liability to produce deaf offspring, the hearing members of the family as well as the deaf members.

This, I think, is the explanation of the curious fact that the congenitally deaf pupils of the Hartford Institution who married hearing persons had a larger percentage of deaf children than those who married deaf-mutes. It is probable that many of the hearing persons they married had brothers or sisters who were born deaf.

Of course, if you yourself were born deaf, or have deaf relatives, it is perfectly possible that in any event some of your children may be deaf.

Not only those concerned with the education and welfare of the deaf, but also the advisors and teachers of the blind are discouraging cacogenic marriages. Such at least is the testimony of Dr. Campbell, of the Ohio State School for the Blind.

That persons of even less than average intelligence are liable to bring unfortunately endowed children into the world is evidenced by the testimony given the committee by several men, five or six out of a total of thirty, who were cross-examined and who were sterilized in the Jeffersonville (Indiana) Reformatory.

They expressed their satisfaction with their sterile condition, and said in substance that they were glad that they would not curse the world with "criminal children."

The following extracts from letters written by intelligent persons demonstrates the fact that such persons are susceptible to eugenic education:

Letter number one:

I am an "albino," thirty-seven years old and single; the chief reason I am not married is I am unwilling to bring into existence another life to labor under the same disadvantages as I. I write this not in a grumbling, but simply a plain statement of a plain fact.

Letter number two:

My husband used to drink hard, and died of tuberculosis last October. Both his father and mother drink hard * * * and all of the family on his side drink. Now what I would like to know is, will my two children, a girl of 18 months and a boy of 5 years and 6 months, inherit their father's health and characteristics, or will they inherit my health, as I was the strongest both mentally and physically?

I would like to know, as it has often worried me when I think of my children; if they should be like their paternal grandmother and grandfather I am sure I would rather the Lord would take them now while they are both innocent children. * * *

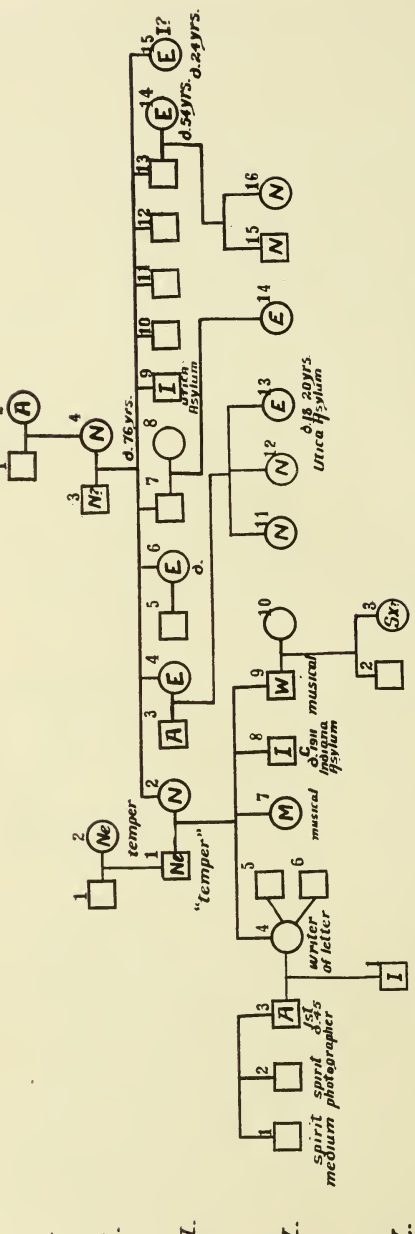
Letter number three:

The male's grandmother, on his father's side, died from heart disease, and the female's mother had a very serious case of valvular heart trouble. * * *

I should like to know as to whether heart diseases are regarded as inheritable or, if there is only a tendency, may this be effectually warded off?

I shall very sincerely appreciate reliable advice you can give me on this matter. Perhaps it may assist in securing a freer expression for me to state that the parties interested broke the engagement on account of the above considerations, the facts being not known when the engagement was entered into.

The following extracts from a letter, and the pedigrees that it describes, are presented in order to illustrate the fact that many persons upon being educated as to their own and their prospective marriage mate's hereditary qualities, will, if hereditary defect be found, forego a contemplated marriage; or, if already married, will forego the privileges and comforts of parenthood if it be established that their offspring would be defective or degenerate.



Pedigree of a neurotic wherein eugenic education might have prevented a certain marriage, and even after marriage might have prevented the birth of a dementia precox.

FIG. No. 7

Letter number four:

I am deeply interested in uncovering a family taint, which comes to me as a thunderbolt from a clear sky and which bids fair to wreck my own life in the possible permanent separation from my beloved son, a really brilliant youth of 22 years, a senior in the electrical engineering class at Armour Institute, to have graduated this past year, but who was compelled to leave school owing to a nervous breakdown. * * *

Dr. ——— made a diagnosis of dementia præcox in January last, but did not tell me what the diagnosis was. * * *

I find there is a deep-seated family taint, which I want to know is or is not responsible for the possible total annihilation of the only child I have—one I love better than my own life. My mother was the oldest of ten children, born near ———, New York. She is living today a healthy, normal woman at 74. She had five brothers, whose children were apparently normal with the exception of one, whose daughter had a few epileptic seizures. ———, one of the brothers, was insane for a short time, and confined in the ——— Asylum, but never had a recurrence of the attack. Of the girls in the family my mother was normal. The next had epileptic fits and was advised to marry young. She married a coarse, drunken farmer; had two normal daughters, so far as I know, and one who was an inmate of the ——— Insane Asylum, an epileptic until her death at 18 or 20 years. Mary, the next married, had epileptic fits, and died before middle age, had no children. ——— married, had a son and daughter normal, had epilepsy at 52 and lived but two years. The youngest was epileptic from birth, probably insane, died at about 24. My mother's mother was a normal woman, lived to be 76, I believe, her father likewise, although I shall find that out later; her grandmother lived to an extreme old age, and my mother tells me now she believes she drank constantly. I am anxious to go farther back than that, if I can find the way. My father was a high-strung, nervous man of violent temper, and describes his mother as having been the same. My father was a graduate of ——— College, ——— Theological, a minister, but his temper made life a hell on earth for us. My sister is 36, unmarried, a fine musician, pianist, but given to extreme sick headaches. My oldest brother was pronounced insane from birth, was whipped and punished by my father, and finally received a severe injury to the skull and brain in the coal mines at ———, Indiana, was sent to the insane asylum at ———, where he ran away some months later. As there were few asylums in Indiana at that time, they did not take the trouble to go after him, and his life from that time on was a series of commitments to workhouses, jails and penitentiaries, for petty offences, insane with criminal tendencies. A year ago he died from enlargement of the spleen. * * * My younger brother was well educated, a fine musician, married a young girl, had two children, left taking a position with a circus, and we have not located him for thirteen years. The boy, his son, 14 years, is described as being exceptionally clever and interested, but played truant, lies and steals, and is at present in the Boys' Reform School, at ———, Indiana. The little girl, about 11, is wayward, hard to control, and I should describe her as sex offending, if not held with a firm hand. My boy's father was a drunkard, an easy-going, good-natured man, a steady drinker, had amassed a fortune of probably $30,000. The whole family are queer—one brother a spirit medium, the other a spirit photographer. I know little of them. His father was 20 years older than myself, died of Bright's disease at 45. The boy is an only child, the father died when he was 14 months old. * * * My son was a brilliant student, a genius in fact, and would have made a name in the world. That he should be consigned to oblivion behind the walls of an insane asylum for the remainder of his life is a blow almost too great to bear. I want to find out whether he is punished for the sins of his ancestors in this rotten family. He did not smoke, drink, associate with lewd women, never had a venereal disease and did not practice masturbation. He had typhoid and scarlet fever, his sight was defective, born so. * * * If I could only assist you in establishing one little valuable item that would help us to understand why these fearful things have to be! If you would only help to educate the poor mothers and fathers of these neurotic children.

Letter number five:

I am referred to you with a problem of heredity in the case of epilepsy, and should appreciate being informed whether, in your judgment, the young man of whom I write should marry at all, and in case of marriage what are the probabilities of transmitting the disease. Inasmuch as I am the woman whom he wishes to marry, I wish to know as nearly absoutely as possible what the risk is. * * * Two physicians have told me that the danger of passing on the heritage of disease is too great—one a specialist in nervous diseases. * * * I should like to have it settled and to feel that my stand is taken in accordance with the best authority. *I am sorry my information is not more complete and detailed.* I have been told that the young boy who died in the home was very bad off, and a continual care all his life, requiring one person's constant attention. My physician in ——— said the disease never was stamped out in a family where it once existed, that it might skip one generation or two, but was *sure* to appear again.

Then follow extracts from a series of letters from the young man, giving quite extended and apparently frank descriptions of epilepsy in his own family.

Letter number six:

I have read in a number of magazine and newspapers articles of the work being done by you, and, if you can consistently consider the same, desire to present a personal case to you for consideration and advice.

At about the age of 12 years the writer suffered from a case of acute *Anterior Poliomyelitis,* the same affecting the lower limbs only, from the hip joints. After a period of some three or four months, during which time the limbs were in a completely paralyzed condition, the strength began to slowly return, and after a lapse of some eight to ten months was able to get about with a cane.

All this was some ten or twelve years ago, the writer at the present time being 24 years of age. He still uses a cane in walking, both lower limbs are somewhat undersized, the bones apparently not being fully developed and the muscles scanty, the right leg being a very small amount shorter than the left. The party is fitted for any kind of office work or other light occupation, which does not require manual labor or necessitates being on the feet all the time, but does not possess sufficient strength or agility to do manual labor or move about rapidly or very quickly.

The writer is one of a family of four children, three of whom are living, one having died of some kidney trouble recently, the remainder, excepting the writer, being in apparently normal condition. The parents are both living, aged about 55 years, both normal and healthy. The grandparents were all strong and healthy, both families raising a family of ten children, and living to the age of near 75 years, except maternal grandfather, who died of some fever when he was near 50 years of age. Great-grandparents were normal in all respects, as far as I can learn. The case referred to is the only one of *Anterior Poliomyelitis* known to occur in four generations referred to.

The information desired is this: Would the offspring of a union between the writer, constituted as covered in the former part of this communication, and a woman, to all appearances in a perfectly normal condition, and whose family record for three generations shows no cases of *Anterior Poliomyelitis,* be likely to develop this disease, or a tendency toward the same?

If you can give me any information along this line the same will be very much appreciated.

P. S.—As a matter of information, will add that since childhood, aside from the disease referred to, the writer has been in absolutely perfect health, the only difficulty being that of imperfect power of locomotion.

This letter is quite typical of those received from persons suffering not only from the so-called functional disorders, but also, as in this case, of persons suffering from the results of infectious diseases wherein the exciting cause is not hereditary and the factor of heredity in the predisposing causes cannot in the present state of knowledge be accurately measured. Such mental attitudes are eugenically wholesome. With the growth and diffusion of knowledge concerning human heredity a national eugenic conscience will develop. Eugenics should not—and could not often, if it would—prevent lovers from marrying; but early eugenical training will in a measure regulate "falling in love."

If an individual whose personality, or whose family, is weak or defective in reference to a particular trait, marries, he should for his own and his descendants' sake, seek a mate who is strong and whose family is strong, wherein he and his family are weak. If, however, it is the good of the race that is at stake, such a person possessing a very serious or handicapping hereditary defect may well not marry at all; and the person of high talent in one direction would seek—other things being equal—a consort from a family characterized by distinction in the same direction. Specialization in human, no less than in plant and animal, strains would result in greatly increased efficiency.

Society must at all costs encourage an increased fecundity of the socially fit classes and must cut off the inheritance of individuals suffering from hereditary defects, which seriously handicap their fitting into the social fabric. It, therefore, behooves the American people to educate along eugenical lines, not only the more sterling classes, to the end that they may make fortunate matings, but also those individuals with educable minds, who suffer from serious hereditary defects, to the end that they will voluntarily decline to increase their kind. These letters just quoted indicate that hereditary traits influence mate selection among persons knowing the manner of the inheritance of specific traits. With intelligent people, then, eugenical marriage appears to be largely a matter of education. In individual cases, wherein this remedy fails, segregation or sterilization should be resorted to as a supporting measure. It may be fitting again to call attention to the eugenic value of the policy of resorting to segregation or sterilization in all cacogenic cases wherein it is apparent that preventive agencies have failed or will fail. If sterilization is opposed, let its opponents bestir themselves and make efficacious other remedies.

(5) *Systems of matings purporting to remove defective traits.* Although it is known that defective traits of the recessive type will

disappear somatically, in subsequent matings, *so long as matings with normal individuals of pure strains are made,* still in such families there is always a likelihood that a simplex (*i. e.,* a tainted germ-plasm, but normal personality) individual will mate with another person similarly descended. For the sake of brevity and conciseness, the accompanying hypothetical pedigree, rather than a series of actual histories, is given in order to illustrate what happens in such cases:

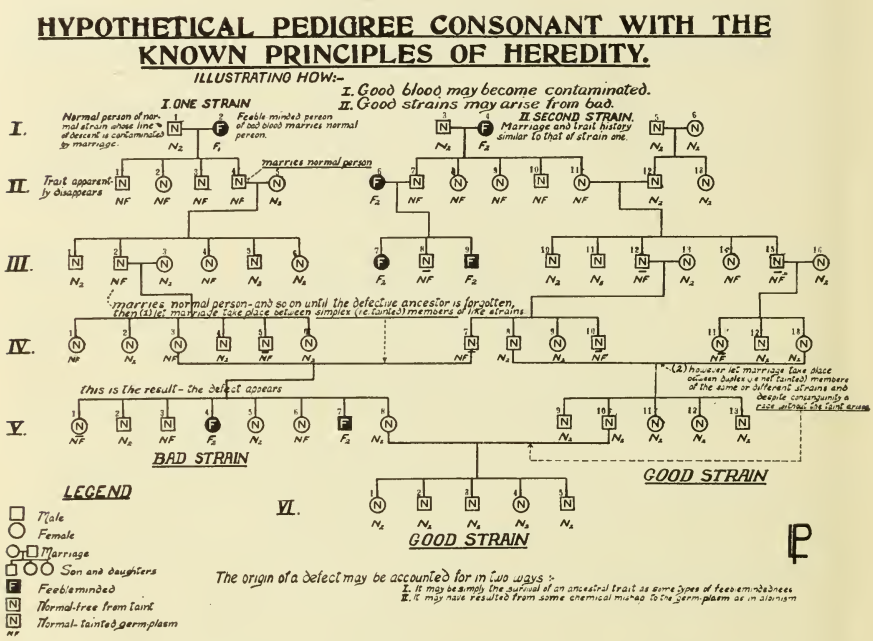


FIG. No. 8

Hence the selection of certain potential parents, and the elimination of others, is the only basis of a possible effective eugenics program of any sort. It, therefore, behooves society to set in operation selective forces which can control mate selection in a practicable manner consonant with the highest moral and social ideals.

(6) *General environmental betterment.* It is held by some schools of social workers that better schools, better churches, better food, better clothing, better living, and better social life will remedy almost any social inadequacy in individuals. The studies of this committee point strongly in the opposite direction. They prove conclusively that much social inadequacy is of a deep-seated biological nature, and can be

remedied only by cutting off the human strains that produce it. Heredity and environment work hand in hand; rarely do they pull oppositely. As a rule, a good ancestral germ-plasm will furnish a good environment for the offspring and a bad ancestral germ-plasm will add to the degenerate hereditary gifts of its offspring a poor environment. Eugenics and euthenics each have their tasks to perform. Neither can perform the whole work required in advancing the social condition of mankind.

(7) *Polygamy.* In animal breeding polygamy or the "pure sire method" has been one of the most potent agencies in rapid advancement and, could the essential biological principles of polygamy be applied to mankind, we should expect these same biological values to accrue. An eugenical program that advocates polygamy must be doomed to failure because it strikes at one of our most priceless heritages so laboriously wrought through centuries of moral struggle. It would be buying a biological benefit at vastly too great a moral cost. A eugenics program to be effective must and can be based upon an enhanced sense of monogamy, and of the sacredness of love and marital fidelity. If any serious students of the modern eugenical studies advocate polygamy, it is unknown to the members of this investigating committee, although many uninformed critics of the eugenics program unhesitatingly complain that eugenics proposes "to apply the methods of the stud farm to mankind."

(8) *Euthanasia.* The ancient Spartans were a race of fighters. The business of the Spartan mothers was to grow soldiers for the State, and Spartan social life and customs appear to have been well directed toward this end. However much we deprecate Spartan ideals and her means of advancing them, we must admire her courage in so rigorously applying so practical a system of selection. According to history and tradition, Spartan officials exposed to the elements children who promised unfitness as adults for effective hand to hand combat. Sparta produced soldiers and she consumed them, and left but little besides tales of personal valor to enhance the world's culture. With euthanasia, as in the case of polygamy, an effective eugenical agency would be purchased at altogether too dear a moral price. Any individual once born should, in the opinion of the committee, be given every opportunity and aid for developing into a decent adulthood of maximum usefulness and happiness. Preventing the procreation of defectives rather than destroying them before birth, or in infancy, or in the later periods of life, must be the aim of modern eugenics.

(9) *Neo-Malthusianism,* or the purposeful limitation of the number of offspring, is a problem for the constructive side of the eugenics program to cope with, rather than an important factor for society to consider in its efforts to cut off the supply of defectives, for defectives of the lower types do not greatly limit sex indulgence by the fear of having children, nor do they resort to artificial means to prevent conception. Hence this remedy does not apply to them. Above this class there is doubtless another class of potential parents of all grades of mentality, and of all grades of social and financial standing who resort to artificial means to prevent conception. With such classes selfishness is a ruling motive, but doubtless in many such cases the determining factors are traceable to current social influences, and as such should be combatted. In a letter dated January 14, 1913, to this committee, Theodore Roosevelt says:

> As you say, it is obvious that if in the future racial qualities are to be improved, the improving must be wrought mainly by favoring the fecundity of the worthy type and frowning on the fecundity of the unworthy types. At present we do just the reverse. There is no check to fecundity of those who are subnormal, both intellectually and morally, while the provident and thrifty tend to develop a cold selfishness, which makes them refuse to breed at all.

It is not an impossible conception to think of a future social status wherein selection for parenthood will be not held a natural right of every individual; but will be a prize highly sought by and allotted to only the best individuals of proven blood, and those individuals who are not deemed worthy and are by society denied the right to perpetuate their own traits in subsequent generations, will be held in pity by their fellows. In pointing out the possible ways of accomplishing it, and in perfecting the practical methods for its execution, the achievement of this ideal is, to speak briefly, the task of the eugenics program for the long indefinite future.

The choice between large and small families for provident parents of good innate traits will be made instantly in favor of large families by all eugenists, just as the same eugenists will insist that defective parents must be estopped from having any children at all. The committee feels constrained to condemn in no uncertain terms the purposeful limiting of offspring of parents of worthy hereditary qualities.

(10) *Laissez-faire.* It is held in many quarters that a rational eugenics program is impossible, or, at best, that eugenic efforts are unnecessary, for, during the ages mankind appears to have improved and advanced without such a program. In reply, let it be said that

modern social conditions have themselves in a large measure brought on the problems that face us; and it behooves society to bestir itself to solve them. Natural selection would continue to cut off the individual blood lines grossly unadapted to modern conditions if it were permitted to operate. It is the bolstering up of the defective classes by a beneficent society that constitues the real menace to our blood, because it lowers the basis of parenthood. Usually nature does not long maintain an unused function. If she gave mankind reason and understanding, and such reason and understanding are not used for promoting their own conservation, then such faculties are apt to be discarded in the ruthlessness of natural selection. In this case the means would consist in disseminating defective traits among the general population, and such deterioration would continue until society itself would no longer be able to bolster up the defectives. Then fortunate combination of traits and natural selection would again operate, and in the long cycle a few worthy strains of mankind would again rise. There must be selection not only for progress, but even for maintaining the present standard. To the degree we inhibit natural selection, we must substitute rational selection, else our blood will deteriorate.

The marvelous rise of plants and animals under domestication—accomplishing in a few years results that in nature might never have been wrought, or if wrought would have consumed many times the length of time found sufficient by man—has been due to man's applying a rational method in selecting parents. A similar possibility for the rise of the innate specialized qualities of the human stock is within the grasp of society; but like all great prizes it must be fought for and purchased at the price of great effort.

SUMMARY

Human society needs to avail itself of every possible means for its own advancement. Quite naturally, these means fall into two classes—(1) those pertaining to improving the condition of individuals already born; (2) those concerning the improvement of the innate qualities of future generations. The latter means is the concern of the science of eugenics, and eugenics in turn works quite naturally along two channels—(1) concerning the increased fecundity and fortunate matings of the better classes; (2) concerning the cutting off of the supply of defectives. Eugenics is at best a long-time investment, and will appeal only to far-sighted patriots. Like all other long-time investments, the

earlier and the greater the primary investment, in accordance with the familiar principle of geometrical progression, the vastly greater the end result. This particular investigation aims to fit into the general scheme of social betterment by attempting to point out a practicable means for accomplishing the cutting off of the supply of innate social misfits. It thus purports to be only one of several agencies of social advancement. It is the duty of human society to grasp every possible means for its amelioration, and, if it finds in the segregation and sterilization of defectives a means for improving the innate qualities of future generations without inflicting a present moral wound, it is the duty of society even at great cost and effort to bestir itself in applying such remedy. This investigation points very strongly to the fact that with all of the upbolstering influences of modern humanitarianism, natural forces no longer suffice to select only the fittest for the human breeding stock. We contend that the perpetuity of our civilization depends primarily upon the conservation of the best inborn traits of our citizens; and that a social order finding a key to the conservation of its best units—and failing to use it, is remiss in its social duty and will suffer racial deterioration. A successful society must at all hazards protect its breeding stock, and since, under modern conditions, a vigorous program of segregation supported by sterilization seems to present the only practicable means for accomplishing such end, a progressive social order must in sheer self-preservation accept it.

By the time a consistent elimination program has been in operation for two generations, the lines of descent of lowest levels of the American population will have been cut off, and during this time the institutions can be made more and more self-supporting, due continually to receiving a higher class of inmates and to administrative reform, and experience in practical self-maintenance. Gradually these institutions can be transformed into industrial schools, and can be used perpetually for educating, training and segregating the more unfortunate, and the least gifted members of the population. There will always be insane, feeble-minded and deformed individuals; but they need not constitute so large a proportion of our total population, nor need they contaminate our more worthy families. If the history of human civilization and of plant and animal breeding have taught us anything they have taught us clearly that the human race is capable of vast improvement by rational selection of parents. And this can be done without sacrificing one whit our ideals of love and fidelity. Hand in hand with the work-

ing out of the eugenical program will come an increased and enhanced feeling of the sanctity of life and of parenthood.

This program for cutting off the lower levels of the human breeding stock is only a part of the general eugenics program, which must include also the positive side, namely, that of encouraging increased fecundity and fortunate matings among the better classes. Indeed, as time goes by, the business of eugenics will tend more and more toward this positive side, aristogenics, it is sometimes called. The program as outlined by the committee calls for a task that will require two generations for the completion of its first stage. No matter to what extent laws may be passed, unless the eugenics program becomes a part of the American civic religion, the financial support necessary to put it into execution cannot be secured from the several legislatures. Nor, without such general feeling, will it be possible even with abundant money to effectively execute a program.

If America is to escape the doom of nations generally, it must breed good Americans. The fall of every nation in history has been due to many causes, but always chiefest among these causes has been the decline of the national stock. Nations must change, but they need not of necessity die out. A quickened eugenics conscience is one of the prerequisites necessary to the working out of a successful eugenics program. Eugenics must be diffused through our religious and moral codes. It must be taught throughout our national educational system. It must be the subject of continued research.

Along with eugenical advance will come social and moral advancement, for, if not, why should we try to breed better persons? The more moral society will foster the eugenics ideal, and the eugenics program will in turn produce people susceptible of a higher social and moral development.

To epitomize—of the several remedies reviewed *segregation and sterilization* are the ones deemed by this committee to be most feasible and effective in cutting off from the human population the supply of defectives. *Restrictive marriage laws and customs, eugenic education of the public, of prospective marriage consorts, and in youth of potential parents, and general environmental betterment* are all eugenic agencies of great value. In this particular problem, however, they rank greatly below segregation and sterilization, although in other social programs they are of prime importance. We condemn *Neo-Malthusianism* because in it we fail to find an agency able to cut off the supply of defectives, but, on the other hand, we find it fraught with great danger,

in that it is more apt to strike at fecundity in our better classes than among degenerates. Systems of matings purporting to remove defective traits, polygamy, euthanasia, and laissez-faire, are condemned unreservedly.

In the subsequent reports of the studies of this committee, we propose, by the means of first-hand facts, a considerable body of which has already been secured and studied, to present to the public data for weighing the several problems that appertain to this investigation.

CHAPTER IV.

SUMMARY OF THE PRELIMINARY STUDIES.

In the preliminary studies of this committee facts concerning each of the several related aspects of the problem, enumerated in the preface of this study, have been and are still being collected. These studies appear amply to justify the commendation to the American people of the following program, which, if consistently followed by all of the states and the general government, will, we believe, in two generations largely but not entirely eliminate from the race the source of supply of the great anti-social human varieties which now (1913) constitute approximately 10 per cent. of the total population:

1. That, in case sterilization is limited to the inmates of institutions, the American state institutions for the segregation and treatment of the anti-social classes continue to receive public support enabling them for at least two generations to increase their capacity for inmates at a ratio differential in reference to the increase of the total population, equal at least to one-half such differential growth of such institutions, taken as a whole, during the two decades 1890-1900. Such increase requires that by 1980 the custodial institutions of the country must be able to care for 1,500 persons per 100,000 population.

2. That the present apparent tendency of society to commit to institutions the socially inadequate at an early age and for a less extreme type be encouraged in order (a) to insure the segregation of the varieties sought to eliminate before the beginning of, or as early as possible in, the reproductive period, and (b) that the earlier treatment and training may the more surely and safely restore such individuals to society.

3. That the segregation program be supported by a sterilization program as follows: That during the period while under State custody every inmate (except those committed for life) of an institution main-

tained in whole or in part by the public funds be examined as to innate personal traits and family pedigree, and that all such inmates found to be potential parents with undesirable hereditary potentialities and not likely to be governed by the highest moral purpose shall be humanely sterilized prior to release from their respective custodians. Such a supplementary sterilization program will call for surgical sterilization of inmates prior to their release from institutions as follows: beginning with approximately 80 persons per year per 100,000 total population in 1915 and increasing to approximately 150 persons per year per 100,000 total population in 1980.

4. Attention is called to the fact that the relation between the segregation feature and the sterilization feature of the program herewith proposed is automatic. If for humanitarian, social or other reasons, objection is made to sterilization, let society keep the potential parent with dangerous hereditary qualities segregated during the reproductive period; if the objection to sterilization can be overcome, then convalescent inmates or persons having served their allotted commitments in institutions, though they be potential parents with dangerous hereditary qualities, can be first sterilized and then from a eugenical—but not necessarily from a social—point of view safely be returned to society. The committee feels that the proposed model sterilization law (Chapter VIII, Bulletin 10 B) provides amply for safeguarding the rights of the individual, for conserving humanitarian principles and at the same time for protecting society against the deterioration of the innate qualities of its members.

5. From a moral, social, and religious, as well as from a biological and legal point of view, the program of segregation and sterilization is, the committee feels, justified because

(a) It appears to be the duty of society to foster by all possible means the innate, as well as the acquired physical, mental and moral well-being of the race, and this program promises the promotion of such an end.

(b) It proposes to sterilize and thus cut off the lines of descent only of persons amply demonstrated in each particular case to be unable to understand, or, if understanding, morally unable to inhibit or control himself or herself in a manner preventing the continuance of his or her unworthy traits. To permit such individuals to reproduce their kind is neither merciful nor just.

(c) The consent of the inmate (or his guardians) to the necessary operation can often be secured, thus relieving the State from imposing upon an individual, even though he be defective or insane, who may, because of such operation, bear some resentment against society. When possible such consent should be secured, but if such consent cannot be secured then the operation must proceed, for the protection of society must outweigh the desires or privileges of an anti-social individual.

(d) There is evidence to show that sex immorality is not encouraged or increased as a result of the sterilization of those manifestly unfit for parenthood. Our investigations indicate that such persons seldom are deterred from immoral practices by any consideration which sterilization would remove, nor does the sterilization of degenerates appear further to break down the modicum of self-respect and control that normally belong to such individuals.

6. It is felt that the sterilization law proposed by the committee will stand the test of constitutionality by the courts. The purely punitive sterilization law of the State of Washington was recently held by the Supreme Court of that state to be neither "cruel nor unusual." A purely eugenical law, expertly drawn and operating humanely and applicable only to individuals who by due process of law and by scientific investigation are demonstrated to be social menaces of the gravest character, would probably be found constitutional in any of the several States.

7. The Federal Government should exercise the same care in preventing the landing of inferior human breeding stock that the State governments should take in eliminating the inferior varieties from the stock already settled here. It should also apply eugenic principles in the administration of its several institutions for criminals and insane.

8. That the segregation and sterilization feature of the proposed program be further supported by legislation and by education applicable to persons with physical disabilities (such as hereditary blindness, deafness, deformity, constitutional weakness, and predisposition to specific diseases), but still possessed of normal mind and subject to social influence and amenable to law. If the defect be an extreme sort, such persons should be deterred from parenthood by eugenical education during their youth. Such education should be supported by laws and customs limiting or prohibiting their marriage. With some in-

dividuals of these classes sterilization by consent may be desirable. If these remedies fail with any particular group of the physically inadequate, then such group of individuals should be classed as socially inadequate and as such should be subjected to the legal segregation and sterilization features of this program.

9. Due continually to receiving a higher grade of inmates and to extending the colonization and industrial systems for better treatment and partial self-maintenance of inmates, it is probable that the necessary increased institution capacity demanded by the recommended program can be provided for without greatly increasing the expense burden in relation to the total state budgets and to the per capita expense to the total population. With institutional growth will come a greater demand for trained physicians, eugenists and administrators with a consequent increased skill in diagnosis and treatment and in determining the hereditary qualities and innate traits of the inmates, all of which will tend to accelerate the attainment of the desired ends.

10. Sterilization of a male by vasectomy skillfully executed is a simple, safe, and effective method for preventing procreation by him without otherwise greatly disturbing his physiological, mental or social economy. By skillful surgical technique and sometimes—though very rarely—by natural processes the vas may be re-anastimosed and the procreatory functions thereby restored. Castration therefore appears to be the only absolutely sure method of sterilizing males, but when young boys are thus operated upon it appears also to inhibit the development of their secondary sexual characteristics as well as to destroy the procreatory functions. Castration of adult males seems to be unaccompanied by any great physiological change other than sterilization. For general eugenic purposes, vasectomy carefully executed is considered sufficiently certain to insure effective sterilization. It is recommended as the best general method where it is considered desirable to sterilize cacogenic males; to be supplanted by other operations only for additional medical or social reasons.

11. The sterilization of the female—whether ovariotomy, salpingectomy, or hysterectomy—is a more serious matter. However, modern surgery and hospital care have greatly reduced the danger of such operations. Salpingectomy and hysterectomy successfully executed have but little physiological effect other than the effective sterilization of females of any age, nor does ovariotomy often have any apparent untoward effects upon adult women. Rare cases of women regenerating ovaries—which were thought to have been entirely removed—and bear-

ing children have been reported. In any effective sterilization program, defective females will have to be sterilized in fair proportion to the number of males thus operated upon, else a substantial reduction in the anti-social strains of our population will be greatly retarded.

12. In some individual cases of sterilization, a therapeutic value, and in others—though quite rarely—an injury, appears to have been wrought. Oftentimes the inmates of institutions are sterilized for purely therapeutic reasons. The committee feels that the application of eugenical sterilization should in no way interfere with such practice. If, incidental to such an operation, a defective line of inheritance is cut off, a eugenic end is also accomplished. Nor should there be any law forbidding in private practice the surgical operation of sterilization for eugenical reasons upon persons at their own or their families' request. In general the same laws that govern criminal surgery and malpractice should govern a possible abuse of these operations.

13. By the consistent application of the segregation, sterilization, and education program herewith reported the American people can in two generations largely purge their blood of the great mass of innately defective traits from which they now suffer.

For the negative side or the cutting off of defectives, it would appear to be a good policy continually to attack in the manner described in Chapter IX of study No. II, the descent lines of the lowest one-tenth of our population. Continuous decimal elimination should become a part of the eugenics creed of civilized people.

The future efforts of this committee will be directed toward extending, evaluating, analyzing, and interpreting the data now being accumulated; and reporting the results of its investigations in a series of studies—one on each of the several aspects of the problem enumerated and individually outlined in the introduction of this preliminary survey.

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PREFACE.

In this study the committee sets forth the results of its investigation into the legislative and legal aspects of sterilization. The study includes calculations supported by data on the working out of the program proposed by the committee as efficacious in substantially reducing the supply of defectives in the American population. The program proposed is a segregation program supported by sterilization whenever a potential parent of anti-social offspring is returned to the general population.

The various aspects of the problems connected with the committing of socially inadequate individuals into the custodial care of the state, and an examination of the existing legal authority and processes for such commitments, will have to be deferred to subsequent studies. The study of the effects of sterilization on the individual and of the surgical, economic, and moral factors will likewise be the subjects of reports already under way. There will be also a digest of literature describing first-hand studies on the heredity of human defects, pointing out the manner in which the families of individuals proposed for sterilization should be studied, and the hereditary qualities of the particular individual determined. We are assuming for this particular study that heredity as an important factor in the production of defectives and in the causation of anti-social conduct is a fact and is accepted generally by the American people. This particular study, then, is not controversial in reference to such factors.

Especial attention is directed toward the criticisms of existing laws on page 98, toward the model law on page 115, and toward the calculations on the working out of the proposed program on page 132.

In the preparation of this report the committee is greatly indebted to Dr. Charles B. Davenport, resident director of the Eugenics Record Office, for frequent consultation and valuable cooperation. Indebtedness to the Honorable Warren W. Foster, Judge of the Court of General Sessions of New York City, is gratefully acknowledged for legal advice in working out the model statute. The chairman, Mr. Bleecker Van Wagenen, has, as with all of the

studies of the committee thus far made, given much of his personal time and thought to the working out of this particular report—without his direction this report would not have been possible.

HARRY H. LAUGHLIN,

Cold Spring Harbor, L. I.

December 15, 1913.

CHAPTER I.

INTRODUCTION.

In the light of the studies thus far made it is clear that the most promising agency for reducing the supply of defectives in the whole population at a rate making for the ultimate extinction of the anti-social strains must consist in the segregation of the members of these strains before their reproductive periods, and in the sterilization of such of them as are returned to society at large while still potential parents. Moreover, such a program to be generally effective must be nation-wide and consistently followed in its application. The relation between segregation and sterilization is, under the model law, automatically complementary. If segregation ceases and the individual of potential parenthood of defectives is about to be returned to society, he is first to be sterilized. If, in such case, objection is made to sterilization, let the particular individual remain under the custody of the state; but protect the nation's breeding stock at all hazards, for self-preservation is the first law of nature with organized society as with individuals. If this principle is accepted, in order to consumate the desired ends, it remains mainly to bring about gradual increase of the capacity of institutions for the custodial care of the socially inadequate, and for finer discrimination in the legal, medical, and social processes for selecting and classifying such inadequates for custodial care, training, treatment, and reformation—for such ends as well as the immediate protection of society are sought by modern institutions; and for the education of a corps of experts skilled in studying family histories and in determining the hereditary potentialities of individuals. And as the science of human heredity advances, enabling experts to judge with greater surety of eugenical value of larger classes of defectives, the several states must extend their sterilizing operations in keeping with the growth of their institutions for the anti-social classes and with scientific knowledge.

The whole task of eugenics does not lie with segregation and sterilization; in fact these two agencies represent, at best, only the negative side of improving the human stock. As with the improvement of any other species, the human species must be improved by encouraging fit and fertile matings among the better classes and in cutting off the lower levels. For the latter it is sufficient to prove

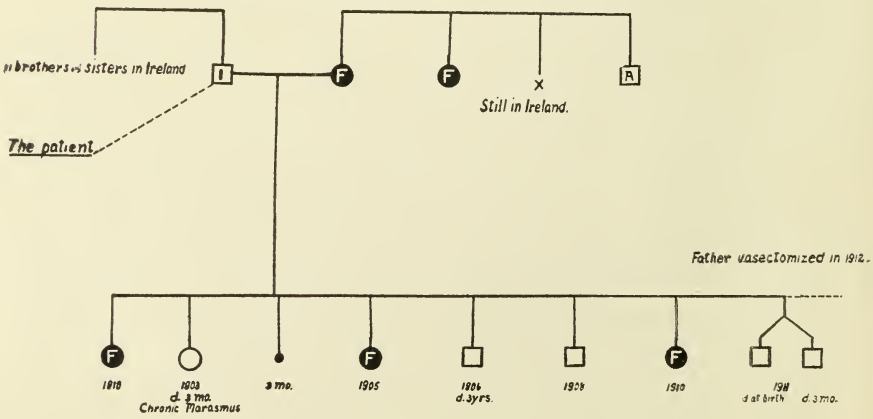
that an individual carries hereditary traits, the continuation of which would be a menace to society. For the former—the constructive side—the problem is much more difficult, for here the greatest skill in selection is required, even if the task were done then; but all of the conventions and customs and morals of modern life and of civilization itself must be considered. Thus the constructive side of eugenical studies becomes largely a matter of research into the manner of the inheritance of sterling traits, of the study of the individual's hereditary qualities and of the education of the educable to regard hereditary traits and eugenically fortunate combinations as marriage assets of the first order.

The studies of this committee show clearly that in states having no laws authorizing and regulating such operations many more sterilizing operations of the various types for purely eugenical or for mixed eugenical and medical motives have been performed within institutions than have been performed under legal guidance in all the states. Thus, in some of the institutions of Pennsylvania, Kansas, Idaho, Virginia, Massachusetts, New Jersey, New York, Iowa, and Oregon, which have or had at the time no sterilization laws, there have been thus sterilized a considerable number of individuals. Usually the consent of the parents or guardian has been secured. And in no case with which the committee is familiar has a legal or a professional complication resulted.

The following pedigree gives an example of eugenical sterilization in a state not regulating such matters.

THE M—H—PEDIGREE

Showing the sort of offspring being produced by an insane man until he was sterilized, upon being discharged after a short commitment in the Boston State Hospital.



In this case the man sterilized was a low-grade individual, subject to attacks of *manic depressive* insanity. During such a period, while being treated at the Boston State Hospital, the authorities there investigated his family history and found that his wife was an individual of low mentality, who, however, kept her home very neat; but the children of the couple were, without exception, of a very low mental order and were destined to become wards of the state. The patient recovered from his attack of insanity, but the authorities declined to release him, because he was still procreating defective offspring. Vasectomy was proposed; the patient demurred; the wife was called in, and among the hospital authorities, the wife, and the patient, vasectomy was agreed upon. The operation was performed and the patient was allowed to go home. His family was no longer entirely dependent upon charity, nor was the patient any longer an expense to the state. Our evidence shows that many operations have been performed in many states under quite similar although less dramatic circumstances. For example, Dr. F. C. Cave, Superintendent of the State Home for Feeble-Minded at Winfield, reports:

"During the administration of Dr. F. Hoyt, of Kansas School for Feeble-Minded at Winfield, asexulation was performed upon fifty-eight inmates, fourteen girls and forty-four boys."

Such cases raise the question, whether sterilization laws are necessary. Cannot the same end be accomplished without them? In their absence great eugenical good could and would, doubtless, as in the past, often be accomplished by enlightened physicians and superintendents of state institutions, but the committee is firmly convinced that an agency so fraught with possibilities for good and for evil should be regulated by law, especially so since, in order to achieve the eugenical end desired, namely, the cutting off of the descent lines of the large body of degenerates now existing, it would be necessary to sterilize in large numbers. Second, should it be agreed that eugenical sterilization should be regulated by law it still remains to determine whether such operations should be considered simple police measures to be entrusted to a non-judicial eugenics commission with wide powers, or whether such operations should be considered so fundamental and so liable to encroach upon the liberty and personal rights of the individuals proposed for sterilization that they should be ordered only by due process of law. The committee feels

quite strongly that *compulsory eugenical* sterilization should be authorized only as a result of due process of law. The soundness of this view we attempt to demonstrate in the subsequent chapters of this study.

In consonance with this position, if a sterilization program is to become effective, a model law must be worked out. Such a law must function as intended; it must not become a dead letter when once upon the statute books of a state. It should provide that under no circumstances shall a socially inadequate individual in state custody, who is a potential parent of defectives of certain anti-social types, be released from such custody until such individual is first rendered sexually sterile. The law should be mandatory in reference to the activities of its executive in investigating the hereditary qualities of persons under the custody of the state. It must amply safeguard the rights of the individual. The state must assume the burden of proof of potential parenthood of defective offspring. As a matter of course the statute should be thoroughly consonant with our ideals of justice, and with our heritage of individual rights, and it must stand the test of public opinion; it must also stand the test of constitutionality by our highest courts. It must be supported by ample appropriation, enabling the state to employ competent and earnest men on its executive commission.

Three motives appear to have prompted the sterilization of individuals in America, first, the eugenical, second the punitive, and third the therapeutic. This model statute should be based upon purely eugenical ideals and must not under any consideration nor in any measure be punitive or vindictive. There is nothing to be gained by sterilizing individuals in a vindictive manner for wrongs done to society. Certainly such treatment would be contrary to our modern sense of justice, and to our modern methods of handling individuals who are unfortunate enough to have to be consigned to the wardship or custody of the state. If an individual possesses hereditary traits of danger to the race he should not be allowed to procreate his kind, but in cutting off his line of descent the eugenical motive must be kept constantly in view. Punishment for the immediate protection of society, and reformatory and hospital care for the benefit of the individual are other problems, which, although part of the general plan for social betterment, must not be confused with this particular eugenical problem. It seems wholly unnecessary

STATE.	DATE.	BY WHOM.	HOUSE AND BILL NUMBER.	PERSONS TO BE SUBJECT IF THE BILL BECOMES A LAW.	
ILLINOIS	March, 1909	Mr. Womack	Senate Bill, No. 249	Inmates of each and every institution of this State entrusted with the care of confirmed criminals, idiots and imbeciles by whom procreation is deemed inadvisable	Dec tar inn
	January 24, 1911	Mr. Martin	House Bill, No. 49	Inmates of all public institutions entrusted with care or custody of habitual criminals, idiots, feeble-minded and imbeciles who are deemed unimprovable mentally and physically and hence unfit for procreation.	Fin aft sul is or im
	March 13, 1913	Mr. Womack	Senate Bill, No. 245	Inmates of all institutions of state entrusted with care or custody of habitual criminals, idiots, feeble-minded and imbeciles who are deemed to be unimprovable physically and mentally and therefore unfit to procreate	Fin aft an co ina sta ap
MINNESOTA	January 27, 1913	Mr. G. W. Brown	House Bill, No. 324	Inmates of any State prison, State reformatory, State training school for boys, State industrial school for girls, State school for feeble-minded and colony of epileptics, or of any State hospital or asylum by whom procreation is deemed inadvisable by Board and Court, and criminals convicted of felony who have had two previous convictions, or those convicted of carnal abuse of a female under 14 years, upon whom sterilization may be imposed by Court in addition to penalty imposed	Dec he co sul of ina sta
NEW HAMPSHIRE	1913	Mr. O'Neill	House Bill, No. 521	Inmates of each and every institution in the State entrusted with the care of confirmed criminals, idiots, rapists and imbeciles, by whom procreation is deemed inadvisable	Dec aft of qu
NORTH DAKOTA	1911	Mr. Johns	House Bill, No. 316	Inmates of each and every institution of State entrusted with care of confirmed criminals, idiots, rapists and imbeciles, by whom procreation is deemed inadvisable	Dec aft re me tic

Sterilization Bills Introduced Into Legislatures, But Which Were Defeated or Have Not Yet Become Laws.

State.	Date.	By Whom.	House and Bill Number.	Persons to be Subject if the Bill Becomes a Law.	Basis of Selection of Individuals.	Executive Agency Provided.	Appropriations to be Available	Type of Operation Authorized.	State's Motive.	History of Bill.
Illinois	March, 1909	Mr. Womack	Senate Bill, No. 249	Inmates of each and every institution of this State entrusted with the care of confirmed criminals, idiots and imbeciles by whom procreation is deemed inadvisable	Decision of chief physician of institution and expert assistants, after examining mental and physical condition of inmate, of the inadvisability of procreation	*Chief physician of institution, in conjunction with expert assistants* if necessary, who shall decide upon operation and perform it	No provisions made for special appropriation	Such operation of sterilization or castration as shall be deemed safest and most efficient	Purely eugenic	Failed to pass
	January 24, 1911	Mr Martin	House Bill, No. 49	Inmates of all public institutions entrusted with care or custody of habitual criminals, idiots, feeble-minded and imbeciles who are deemed unimprovable mentally and physically and hence unfit for procreation.	Final decision of court upon recommendation of authority after latter has examined mental and physical condition of subject and his history and, concluded that improvement is improbable, and procreation consequently inadvisable; or that the condition of the patient will be substantially improved thereby	*Authority*, consisting of physician or surgeon in charge of institution assisted by competent surgeons, directed by the managing officers of institutions: conclusions of said authority to be reported to Circuit Court or any other court of competent jurisdiction, in and for the district from which inmate is committed, for final decision. Court shall appoint one of the authority to perform operation	"Surgeon performing operation shall receive from State such compensation for the service rendered as the Board of Administration shall deem reasonable"	Vasectomy or oöphorectomy in a safe and humane manner	Mainly eugenic; also therapeutic	Failed to pass
	March 13, 1913	Mr Womack	Senate Bill, No. 245	Inmates of all institutions of state entrusted with care or custody of habitual criminals, idiots, feeble-minded and imbeciles who are deemed to be unimprovable physically and mentally and therefore unfit to procreate	Final decision of court upon recommendation by authority after examining physical and mental condition of subject and his history, and deeming that the physical and mental condition is unimprovable and procreation is therefore inadvisable, or that the condition of inmate will be substantially improved thereby. One of the authority being appointed by the court to perform the operation	*Authority*, consisting of physician or surgeon in charge of institution, with his surgical assistants, authorized and directed by the managing officers of the institution; conclusions of said authority to be reported to Circuit Court or to any other court of competent jurisdiction, in and for the district from which inmate is committed, for final decision. Court to appoint one of the authority to perform operation	No provisions made for special appropriation	Vasectomy or oöphorectomy in a safe and humane manner	Mainly eugenic; also therapeutic	Pending at the 1913 session of the General Assembly
Minnesota	January 27, 1913	Mr. G. W. Brown	House Bill, No. 324	Inmates of any State prison, State reformatory, State training school for boys, State industrial school for girls, State school for feeble-minded and colony of epileptics, or of any State hospital or asylum by whom procreation is deemed inadvisable by Board and Court, and criminals convicted of felony who have had two previous convictions, or those convicted of carnal abuse of a female under 14 years, upon whom sterilization may be imposed by Court in addition to penalty imposed	Decision of Board of Examiners upon recommendation by head of institution, after examining mental and physical condition of inmate, his family history, and after allowing subject a hearing in court, if so desired, of the improbability of his physical or mental improvement, and the consequent inadvisability of procreation, or of the probability of substantial improvement thereby	*Board of Managers* for each institution, consisting of chief medical officer of institution, secretary of State Board of Health and one competent physician and surgeon of good standing and of at least 10 years' practice in his profession in Minnesota, who shall be appointed by State Board of Control and shall serve during its pleasure. If chief medical officer decides that operation is necessary or desirable, and gains written consent of patient, he may perform or procure performance of such operation without bringing matter to the Board—unless subject be a minor, when guardian, or, if he has none, the State Board of Control shall decide for him, except in cases where the Examining Board or the court orders operation	"The per diem compensation of such third member so appointed shall be fixed by State Board of Control in letter of appointment, and the per diem and actual necessary expenses shall be allowed and paid in the same manner as is provided by law for the payment of the salaries and expenses of the members, agents and employees of the State Board of Control"	Such sterilizing operation as is deemed best by the Board; or in case of confirmed criminals and rapists, such operation as is designated by the court passing sentence for offense	Mainly eugenic; also therapeutic	
New Hampshire	1913	Mr. O'Neill	House Bill, No. 521	Inmates of each and every institution in the State entrusted with the care of confirmed criminals, idiots, rapists and imbeciles, by whom procreation is deemed inadvisable	Decision by Board of Managers and Committee of Experts after examining mental and physical condition of subject, of improbability of his mental improvement and the consequent inadvisability of procreation	*Committee of Experts*, consisting of two skilled surgeons and the chief physician of the institution, in conjunction with the Board of Managers	"In no case shall the consultation fee be more than three ($3.00) dollars to each expert, to be paid out of the funds appropriated for the maintenance of such institutions"	"Such operation for the prevention of procreation as shall be decided safest and most effective"	Purely eugenic	Referred to next Legislature
North Dakota	1911	Mr. Johns	House Bill, No. 316	Inmates of each and every institution of State entrusted with care of confirmed criminals, idiots, rapists and imbeciles, by whom procreation is deemed inadvisable	Decision of Committee of Experts and Board of Managers, after examining physical and mental condition of inmates recommended, of improbability of improvement of their mental condition and consequent inadvisability of procreation	*Committee of Experts*, consisting of two skilled surgeons of recognized ability with chief physician of institution, in conjunction with Board of Managers	"In no case shall consultation fee be more than three ($3.00) dollars for each expert, to be paid out of the funds appropriated for the maintenance of such institution"	"Such operation for the prevention of procreation as shall be decided safest and most effective"	Eugenic	Defeated in Senate. House Bill No. 342—introduced in 1913, was approved March 13, 1913
Ohio	1913	Mr. Cowan	House Bill, No. 241	Feeble-minded, epileptic, criminal and other defective inmates, confined in the several State hospitals for the insane and other benevolent, charitable and penal institutions in the State by whom procreation is deemed inadvisable. The criminals coming within operation of this law to be those convicted of rape, or such succession of offenses against criminal law, as to be deemed confirmed in their criminal tendencies	Decision by majority of Board, after examining mental and physical condition of subject, his record and family history, of the improbability of improvement of his condition, and the consequent inadvisability of procreation; or of the probability of substantial improvement thereby	*Board of Examiners of Feeble-minded Criminals and other Defectives*, consisting of five members, three of which to be appointed by the governor, i. e.: one surgeon, one neurologist and one practitioner of medicine, all of whom have had not less than 10 years' practice; also the secretary of State Board of Health, and the secretary of State Board of Charities, to be ex-officio members, the secretary of State Board of Health to act as secretary of said Board of Examiners	"Members of said Board shall receive a compensation of ten ($10.00) dollars for each day spent in business of board, and shall also receive their actual and necessary traveling expenses. Such per diem and expenses shall be paid from the current expense fund, appropriated to the Board of Administration for the support of institutions coming within the provisions of this act"	Operation for the prevention of procreation decided by the Board to be most effective	Mainly eugenic; also therapeutic	
Oregon	January 19, 1911	Senator Albee	Senate Bill, No. 90	Inmates of each and every institution in the State entrusted with the care of confirmed criminals, insane persons, idiots, rapists or imbeciles by whom procreation is deemed inadvisable. "Confirmed criminals" to apply and include all persons serving a third term in any penitentiary or penal institution, upon conviction of a felony	Decision by Committee of Experts and Trustees, after examining mental and physical condition of subject, of the improbability of mental improvement and the consequent inadvisability of procreation	*Committee of Experts*, consisting of two skilled surgeons of recognized ability in addition to the regular institutional physician, to act in conjunction with the trustees	No provision made for special appropriation	Such operation for the prevention of procreation as shall be decided safest and most effective	Mainly eugenic	In 1909 a bill was passed, but was vetoed by Gov. Chamberlain. In 1913 a bill was passed and approved by the Governor; but was repealed by referendum, Nov. 4, 1913
Pennsylvania	February 6, 1911	Mr. Freeman	House Bill, No. 234	Inmates of every institution in State having care of idiotic, imbecile, feeble-minded or chronic insane persons which is wholly or in part supported by the State	Unanimous written decision by Commission, approved by the vote of three-fourths of Board of Trustees or Managers, after examining mental and physical condition of subject, of the impossibility of mental recovery, and the advisability of sterilization, both as a benefit to patient and to community; said findings to be reported to Court of Common Pleas of county to which patient belongs, which decides for or against the operation	*Commission* to examine mental and physical condition of certain of inmates, etc., consisting of a neurologist and a surgeon of recognized ability (one of whom may be the chief physician of the instituiton), and the chief physician; in consultation with Board of Trustees and Managers. All orders subject to final decision of Court of Common Pleas	No provision made for special appropriation	"Such operation as may be proper for the purpose"	Partly eugenic; partly therapeutic	Failed to pass
	February 4, 1913	Mr. Bielock	House Bill, No. 365	Inmates of every institution having the care of idiotic, imbecile, feeble-minded or chronic insane persons, which is wholly or in part supported by the State	Written decision of entire Commission, after examining mental and physical condition of subject, that he is hopelessly and incurably idiotic, imbecile, feeble-minded or insane, and that sterilization would be for the benefit of patient and community, approved by at least three-fourths of Board of Trustees, subject to final order of Court of Common Pleas	*Commission*, consisting of a neurologist and a surgeon of recognized ability (one of whom may be the chief physician of the institution), with the chief physician of institution, in conjunction with Board of Trustees and Managers. All orders subject to final decision of Court of Common Pleas	No provision made for special appropriation	"Such operation as may be proper for the purpose"	Mainly eugenic; partly therapeutic	Failed to pass
Virginia	1910	Messrs. Stephenson and Noland	House Bill, No. 96	Inmates of each and every institution in the State entrusted with the care of criminals, idiots and imbeciles	Decision by Committee of Experts and Board of Managers, after examining the mental and physical condition of inmate, of improbability of mental or physical improvement and consequent inadvisability of procreation	*Committee of Experts*, consisting of one skilled surgeon of recognized ability, one alienist of recognized ability and secretary of State Board of Charities and Corrections, in addition to chief physician of institution; in conjunction with Board of Managers	"Said surgeon or surgeons to receive no additional remuneration * * * in no case shall the consultation fee for surgeon and alienist be more than five dollars to each expert, to be paid out of funds appropriated for the maintenance of such institution"	"Such operation for the prevention of procreation as shall be deemed safest and most effective"	Eugenic	Failed to pass
Wisconsin	May 12, 1909	Committee on Charitable and Penal Institutions	No. 744 A (Substitute Amendment No. 1 A to 744 A)	Inmates of State and county institutions, who have charge of criminal, insane, feeble-minded and epileptic persons	Unanimous decision by experts and superintendents, after examining physical and mental condition of subject, of the inadvisability of procreation, receiving final authorization of State Board of Control	*Two Experts* (one surgeon and one alienist), *to act in conjunction with the superintendents of the State and county institutions*; final action being authorized by State Board of Control	No provision made for special appropriation	"Such operation for the prevention of procreation decided safest and most effective"	Eugenic	Failed to pass
	March 1, 1911	Mr. Sholts (by request)	No. 900 A	Inmates of State and county institutions entrusted with care of criminals, insane, feeble-minded and epileptics	Unanimous decision by experts and superintendents, after examining physical and mental condition of the inmate, of the inadvisability of procreation, receiving final authorization of the State Board of Control	*Two Experts* (one surgeon and one alienist), *to act in conjunction with the superintendents of the State and county institutions*; final action being authorized by State Board of Control	No provision made for special appropriation	"Such operation for the prevention of procreation decided safest and most effective"	Eugenic	Failed to pass The Hoyt bill, introduced July 1913, was approved July 30, 1913

RIATIONS AVAILABLE FOR ENFORCING THE ACT.	EXTENT OF OPERATIONS UNDER THE LAW, TO DATE. (Excluding the Many Usual Operations for Medical Reasons.)
tation fee be more than $3.00 to each expert, to be paid out of the maintenance of the institution"	In the Jeffersonville Reformatory between 1899 and 1907, 176 men were vasectomized. In 1907 and 1908 about 125 men were operated on. Rumors which are not confirmed extend the number of operations of all sorts to nearly 800, 300 is doubtless nearer correct
al appropriation	Two operations ordered, but none executed
al appropriation	Between November, 1910, and the summer of 1912 there were 268 operations under the law
al appropriation	
nation and surgeon performing such operation shall receive from the for services rendered as warden of State prison or superintendent deem reasonable"	Up to October 27, 1913, seven operations, two on men and five on women, had been performed at the Norwich State Hospital
al appropriation	No operations
al appropriation	No operations reported "as performed under the act"
al appropriation	

Analysis of Existing Sterilization Laws, December, 1913

State.	Date of Approval of Statute.	Reference in Session Laws.	Persons Subject.	Executive Agencies Provided.	Basis of Selection; Procedure	Type of Operation Authorized.	State's Motive.	Appropriations Available for Enforcing the Act	Extent of Operations Under the Law, to Date (Excluding the Many Usual Operations for Medical Reasons.)
1. Indiana	March 9, 1907	Chapter 215	Inmates of all State institutions deemed by commission of three surgeons to be unimprovable physically and mentally, and unfit for procreation	*Committee of Experts*, consisting of two skilled surgeons of recognized ability, who shall act in conjunction with regular institution physician and Board of Managers of the institution	Inadvisability of procreation and improbability of improvement of mental and physical condition in judgment of Committee of Experts and Board of Managers of the institution	Any type at option of commission	Purely eugenic	"In no case shall the consultation fee be more than $3.00 to each expert, to be paid out of the funds appropriated for the maintenance of the institution"	In the Jeffersonville Reformatory between 1899 and 1907, 176 men were vasectamized. In 1907 and 1908 about 125 men were operated on. Rumors which are not confirmed extend the number of operations of all sorts to nearly 500, 300 is doubtless nearer correct
2. Washington	March 22, 1909	Chapter 249, Section 35, *Criminal Code*	Habitual criminals and persons adjudged guilty of carnal abuse of female persons under ten years of age, or of rape	*The Court* passing sentence for offense may in addition direct operation to be performed	Character of subject and his previous unsocial acts	Any operation for the prevention of procreation	Purely punitive	No provision made for special appropriation	Two operations ordered, but none executed
3. California	(a). *First Statute* April 26, 1909	Chapter 720	Inmates of State hospitals and home for feeble-minded, and inmates of State prisons committed for life, or showing sex or moral perversion, or twice committed for sexual offenses, or three times for other crimes	*Board* consisting of superintendent or resident physician of the institution in consultation with the general superintendent of State hospitals and the secretary State Board of Health	Decision by entire board, or any two of them that asexualization will be beneficial, or conducive to the benefit of the physical, mental or moral condition of the inmate	Asexualization	Mainly eugenic, also for the physical, mental or moral benefit of inmate, also partly punitive in certain cases	No provision made for special appropriation	Between November, 1910, and the summer of 1912 there were 204 operations under the law
	(b). *Second Statute* June 13, 1913, *this statute repeals the first statute*	Chapter 363	Inmates of State hospitals and home for feeble-minded and recidivists, all prisons of the State. Act does not apply to voluntary patients in State hospitals	*State Commission in Lunacy*, for the insane *Resident physician* of the respective State prisons, the general superintendent of State hospitals and secretary State Board of Health for recidivists *Medical Superintendent* of any State hospital for "idiots or fools"	Discretion of the commission before release of persons "affected with hereditary insanity or incurable chronic mania or dementia" Discretion of resident physician of any State prison in consultation with the general superintendent of State hospitals and secretary of the State Board of Health in cases of recidivists, provided asexualization would benefit such recidivist, and that such recidivist has been twice convicted for sexual offenses, or three times for any other crime in any State or country Discretion of the medical superintendent of any hospital may asexualize any minor, "idiot or fool" under his care, with the written consent of the parent or guardian if such "idiot or fool" be an adult, and said medical superintendent shall perform such operation at the request of such parents or guardians	Asexualization	Mainly eugenic, also in some cases therapeutic and punitive	No provision made for special appropriation	
4. Connecticut	August 12, 1909	Chapter 209	Inmates of State prisons and of State hospitals at Middletown and Norwich	*Board* of three surgeons, consisting of the resident physician and two others appointed by the superintendent of the particular institution, one member of said board appointed to perform operation	Decision by majority of board, after examining the mental and physical condition of subject, his record and family history, of the improbability of improvement of the physical and mental condition and the consequent inadvisability of procreation, or of the probability of substantial improvement of the mental and physical condition of subject thereby	Vasectomy or odphorectomy in a safe and humane manner. For operations except as authorized by law, a fine of not more than $1,000, or 5 years' imprisonment, or both, is provided	Mainly eugenic, also therapeutic	"Board making such examination and surgeon performing such operation shall receive from the State such compensation for services rendered as warden of State prison or superintendent either such hospital shall deem reasonable"	Up to October 27, 1913, seven operations, two on men and five on women, had been performed at the Norwich State Hospital
5. Nevada	March 17, 1911	Section 28 *Crimes and Punishment Act*	Habitual criminals and persons adjudged guilty of carnal abuse of female persons under ten years of age, and of rape	*The Court* passing sentence for offense may in addition direct the operation to be performed	Character of subject and his previous unsocial acts	Any operation for the prevention of procreation, except castration	Purely punitive	No provision made for special appropriation	No operations
6. Iowa	(a). *First Statute* April 10, 1911	Chapter 129	Inmates of public institutions for criminals, idiots, feeble-minded, imbeciles, drunkards, drug fiends, epileptics, syphilitics, etc.	*Board*, consisting of the managing officer and surgical superintendent of each institution, with members of State Board of Parole, the operation being performed by the surgeon of the institution	Decision by a majority of board, after examining mental and physical condition of subject, of the improbability of mental or physical improvement, and the consequent inadvisability of procreation, or of the probable substantial improvement thereby, or continual evidence on part of subject of being a moral or sexual pervert	Vasectomy or salpingectomy. For operations, except as authorized by the act, punishable by fine of "not more than $1,000, or imprisonment in the penitentiary, not to exceed one year, or both"	Mainly eugenic, also punitive in cases of certain felons and sex offenders, also therapeutic	No provision made for special appropriation	No operations reported "as performed under the act"
	(b). *Second Statute* April 19, 1913, *this statute repeals the first statute*	Chapter 187	Inmates of public institutions for criminals, rapists, idiots, feeble-minded, imbeciles, lunatics, drunkards, drug fiends, epileptics, syphilitics, moral and sexual perverts, and diseased and degenerate persons. Compulsory in cases of persons twice convicted of felony or of sexual offense other than "white slavery," for which offense one conviction makes sterilization mandatory	*State Board of Parole* with the managing officer and physician of each institution for their respective institutions Upon application to the Board of Parole or to any judge of the district court, by persons affected with syphilis or epilepsy, said board or court may authorize vasectomy or salpingectomy as the case may be Upon submitting to such operation by one of the contracting parties and making said fact known to the second party, the law restricting marriage of such persons shall be void Board "directed to examine sexuality or offense" the mental and physical condition and family history of inmates of institutions with the view of determining the prospects of procreation by such individuals, and to report annually to the governor the proceeding "and also observation and statistics regarding its benefit"	Decision by a majority of special board (Board of Parole, managing officer and physician of institution) that procreation by inmate would produce children with a tendency to disease, degeneracy, deformity or that physical or mental condition of inmate would be improved thereby, or that inmate is a sexual or moral pervert, operation to be performed by the physician of the institution, or by one selected by him	Vasectomy or salpingectomy. For operations, except as authorized by this act, punishable by fine of "not more than $1,000, or imprisonment in the penitentiary, not to exceed one year, or both"	Mainly eugenic, also punitive in cases of certain felons and sex offenders, also therapeutic	No provision made for special appropriation	
7. New Jersey	April 21, 1911	Chapter 190	Inmates of State reformatories, charitable and penal institutions (rapists and confirmed criminals)	*Board of Examiners*, consisting of one surgeon, one neurologist, each of recognized ability, appointed by the governor by and with the advice of the Senate, acting in conjunction with the Commission of Charities and Corrections; any person qualified under the laws of the State under direction of chief physician of institution being allowed to perform operation, orders subject to review by Supreme Court, or any justice thereof	Unanimous decision of board in conjunction with chief physician of the institution, after examining the mental and physical condition of subject, of the improbability of improvement of his condition, and the consequent inadvisability of procreation	Any type of operation for the prevention of procreation as determined by Board of Examiners	Purely eugenic	"There shall be paid out of funds appropriated for maintenance of such institutions to each physician of said board of examiners, a compensation of not more than $10.00 per diem, for each day actually given to such work or examination, and the actual and necessary expenses incident to going to, holding and returning from such examination" The judge of Court of Common Pleas appointing any counsel under this act may fix compensation to be paid him, and it shall be paid as other court expenses are now paid.	No operations have been performed under the act
8. New York	April 16, 1912	Chapter 445	Inmates of State hospitals for the insane, State prisons, reformatories and charitable institutions, and rapists and confirmed criminals in penal institutions	*Board of Examiners*, consisting of one surgeon, one neurologist, one practitioner of medicine appointed by governor for five years, one of its members being appointed by the Board to perform operation. All orders shall be subject to review by Supreme Court or any justice thereof.	Decision by majority of board, after examining mental and physical condition of subject, his record and family history, of the improbability of improvement of his condition and the consequent inadvisability of procreation, or of the probability of substantial improvement of subject's condition thereby	Any operation for the prevention of procreation. Type determined by the Board of Examiners. Except for medical necessity unauthorized operation constitutes a misdemeanor	Purely eugenic	"The compensation shall be $10.00 per diem for each day actually engaged in performance of duties of the board, and their actual and necessary travelling expenses" Judge of court appointing counsel under this act may fix compensation to be paid him. $5,000 appropriated for 1913-14	No operations have been performed under the act
9. North Dakota	March 13, 1913	Chapter 56	Inmates of State prisons, reform school, school for feeble-minded, and asylum or hospital for insane	*Board*, consisting of chief medical officer of the institution, secretary of State Board of Health, and one competent physician and surgeon of good standing and experience, who shall be appointed by State Board of Control, the latter designating some skilled surgeon, who may or may not be one of their own number, to perform the operation	Decision by the board, or even by the chief medical officer of the institution, after examining mental and physical condition at subject, of the improbability of physical or mental improvement, and the consequent inadvisability of procreation, or of the probability of substantial improvement of subject's condition thereby	Surgical operation for sterilization	Mainly eugenic, also therapeutic	The per diem compensation of the members appointed by the State Board of Control shall be fixed by that board in the letter of appointment, and shall not exceed $10.00 per day, while in actual performance of their duties, and the per diem, and actual, and necessary expenses of such members shall be allowed and paid in same manner as is provided for by law for the payment of salaries and expenses of members, agents and employees of state Board of Control; also the investigation and securing at expense of county transcripts of records of conviction from other counties and States, and also such evidence of identification as may be obtained	No operations up to November 4, 1913
10. Michigan	April 1, 1913 *Became effective August 14, 1913*	Act No. 34	Inmates of State institutions maintained wholly or in part by public expense	*Board* for each institution to consist of the members of the board of each institution and the physicians or surgeons in charge thereof, such board to direct some competent physician or surgeon to perform operation. In case an institution has no physician at head, board of Managers may hire operation performed, 30 days' notice being given subject, with option of hearing in court	Decision by a majority of the board, after examining physical and mental condition of subject, of the improbability of improvement of mental or physical condition, and the consequent inadvisability of procreation, or of the probability of substantial improvement of the subject's condition thereby	Vasectomy or salpingectomy, in a safe and humane manner, or improvements thereon less dangerous to life. For operation, except as authorized by this act, or for medical necessity, punishable by fine, not more than $1,000, or imprisonment for not more than 5 years, or both	Mainly eugenic, also therapeutic	The institution physician or surgeon performing operation shall receive no compensation therefor; if any surgeons are hired, these shall be allowed for their services the compensation fixed by the statutes, for the examination and certification of an insane person. The several sums necessary to carry out provisions of this act shall be paid out of general fund of State, upon the warrant of the auditor-general	No operations up to October 29, 1913
11. Kansas	March 14, 1913	Chapter 305	Inmates of all State institutions entrusted with the care or custody of habitual criminals, idiots, epileptics, imbeciles and insane; "habitual criminal" to mean "a person who has been convicted of some felony involving moral turpitude"	By an *authority* "consisting of the managing officers of each and every institution of the State in conjunction with competent surgical assistants, who shall report its conclusions to the district court, or any court of competent jurisdiction, in or for the district, from which such inmate has been committed; the final order of sterilization lying with the court, who shall appoint one of the 'authority' to perform operation"	Final order of the court to which have been reported the conclusions of the "authority," after examining the physical and mental condition of the subject, his record and family history, to the effect that the subject's condition is deemed unimprovable and consequently procreation will be undesirable; or that the subject's condition will be substantially improved thereby	Vasectomy or odphorectomy in a safe and humane manner. For operations, except as authorized by law, or for medical necessity, fine of $1,000, or imprisonment for one year, or both, is provided	Mainly eugenic, also therapeutic	"The surgeon performing operation shall receive from the State such compensation for the service rendered as the Board of Administration shall deem reasonable—to be paid out of the maintenance fund of the institution in which such person is confined"	No operations up to October 20, 1913
12. Wisconsin	July 30, 1913	Chapter 693	Inmates of all State and county institutions for "criminal insane, feeble-minded and epileptic persons"	*Special Board*, consisting of "one surgeon and one alienist of recognized ability" * * * "in conjunction with superintendents of the State and county institutions", appointed by the *State Board of Control*. Duty of special board "to examine into the mental and physical condition of 'persons legally confined' in all State and county institutions." It "shall meet, take evidence and examine" and shall report to the State Board of Health its findings in cases duly nominated by said Board of Control	Finding by unanimous vote of special board that "procreation" is undesirable "by inmates whose names are submitted to said board by the State Board of Control," makes lawful the performance of operations by authority and only by authority of State Board of Control	"Such operation for the prevention of procreation as shall be deemed safest and most effective"	Purely eugenic	"* * * a sufficient amount of money to carry into effect the purpose of this section, not to exceed two thousand dollars." Experts' compensation fixed by the State Board of Control, which shall not exceed ten dollars per day and expenses for days actually consumed in the performance of duty	No operations up to November 7, 1913
Recommended Model State Law			Inmates of all State, county and city hospitals for the insane, institutions for the feeble-minded, epileptic and inebriates, reformatories, charitable and penal institutions	*Eugenics Commission* appointed by the Governor, or State Board of Control, consisting of an expert each in biology, pathology and psychology, to devote their entire time to the work of the commission. Said commission to report to a State court of record each case recommended for sterilization. If said court is satisfied that the individual in question is a potential parent of defectives, said court shall cause responsible head of institution to cause a sterilizing operation of a given type to be performed upon and individual within 5 days. Rights of individual safeguarded by provisions for appeal	Every inmate, prior to release, provided it is deemed eugenically advisable by Eugenics Commission, and can be demonstrated by said Commission to the satisfaction of a State court of record that the individual in question is potential to producing offspring who would probably possess anti-social traits	Sterilization. Type determined by Eugenics Commission at time of recommendation for sterilization	Purely eugenic	Adequate appropriation for annual salary for members of commission, clerks and field investigators, and for office quarters, supplies and traveling expenses	
Recommended Federal Law			Inmates of all federal hospitals, reformatories and charitable and penal institutions. Defective immigrants and immigrants with defective heredity	*Eugenic Commission* appointed by the President, consisting of an expert each in biology, pathology and psychology, to devote their whole time to the work of the commission. Said commission to report to a Federal Court each case recommended for sterilization. If said court is satisfied that the individual in question is a potential parent of defectives, said court shall order the responsible head of institution to cause a sterilizing operation of given type to be performed upon said individual within 5 days. Rights of individual safeguarded by provision for appeal	Every inmate and immigrant, prior to release, provided it is deemed eugenically advisable by Eugenics Commission, and can be demonstrated by said Commission to satisfaction of a Federal Court, that the individual in question is potential to producing offspring who would probably possess anti-social traits	Sterilization. Type determined by Eugenics Commission at time of recommendation for sterilization	Purely eugenic	Adequate appropriation for annual salary for members of commission, clerks, and field investigators, and for office quarters, supplies and traveling expenses	

in this statute to authorize sterilization from a therapeutic motive, inasmuch as the laws governing surgical operations in general appear to be quite adequate in such cases. If a person becomes diseased or injured, and an operation that involves sterilization is necessary, then the fact that such operation does involve sterilization does not apparently change the legal status of the case; if accidentally a line of degenerates is cut off, well and good, and if in a eugenical sterilization a therapeutic end is served, so much the better; but the principal motive and authority for a particular operation should be clear and distinct and should not be dependent upon a legal tangle. In both institutional and private practice therapeutical operations should be regulated as at present.

The legal factor of the proposed program for cutting off the supply of defectives by sterilization as supplementary to segregation presents many difficult problems. These problems are, however, due to the newness of the agency proposed to be invoked by society for effecting the extirpation of its degenerate strains and for promoting the conservation of its better elements, rather than by any inherent legal impossibilities of achievement. This the committee endeavors to demonstrate in the subsequent chapters of this study.

CHAPTER II.

EXISTING LAWS: ANALYSIS, TEXT, AND LEGISLATIVE HISTORY.

The committee reports herewith a history of the sterilization laws thus far enacted by the several states, and records also the facts concerning the working out of these laws, seeking thereby to point out their elements of virtue and deficiency. By the aid of conservative and learned counsel the committee presents for the consideration of the public a model sterilization law (p. 117), which, if generally adopted by the states, will, the committee believes, set in operation agencies which will, if consistently supported, greatly, and in a humane and just manner, reduce the supply of human beings suffering from insurmountable hereditary handicaps.

A. TABULAR ANALYSIS OF LAWS.

The accompanying table gives an analysis of all of the existing (December, 1913) sterilization laws.

B. TEXTS AND HISTORIES OF THE STATUTES.

The full text of these laws, together with their legislative history, follows:

1. *Sterilization Law of Indiana.*

The bill was introduced on January 29, 1907, by Representative Horace D. Read, of Tipton, Ind.

It passed the House February 19, 1907—59 ayes, 22 noes; the Senate March 6, 1907—28 ayes, 16 noes.

It was approved March 9, 1907, by Governor J. Frank Hanley.

It appears on the Indiana laws of 1907 as Chapter 215, on page 377; Burns' Indiana Statutes 1908, sec. 2232.

AN ACT to prevent procreation of confirmed criminals, idiots, imbeciles, and rapists; Providing that superintendents or boards of managers of institutions where such persons are confined shall have the authority and are empowered to appoint a committee of experts, consisting of two physicians, to examine into the mental condition of such inmates.

WHEREAS, heredity plays a most important part in the transmission of crime, idiocy, and imbecility:

THEREFORE, BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF INDIANA, that on and after the passage of this act it shall be compulsory for each and every institution in the state, entrusted with the care of confirmed criminals, idiots, rapists, and imbeciles, to appoint upon its staff, in addition to the regular institutional physician, two (2) skilled surgeons of recognized ability, whose duty it shall be, in conjunction with the chief physician of the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and board of managers. If, in the judgment of this committee of experts and the board of managers, procreation is inadvisable, and there is no probability of improvement of the mental and physical condition of the inmate, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as shall be decided safest and most effective. But this operation shall not be performed except in cases that have been pronounced unimproveable: *Provided*, That in no case shall the consultation fee be more than three dollars to each expert, to be paid out of the funds appropriated for the maintenance of such institution.

2. *Sterilization Law of Washington.*

The bill was introduced as a part of the criminal code which was prepared by the Code Commission.

It passed the Senate March 1, 1909; the House March 4, 1909.

It was approved March 22, 1909, by Governor M. E. Hay.

It appears on the Washington statutes of 1909 as Chapter 249, sec. 35 Criminal Code.

Prevention of Procreation: Whenever any person shall be adjudged guilty of carnal abuse of a female person under the age of ten years, or of rape, or shall be adjudged to be an habitual criminal, the court may, in addition to such other punishment or confinement as may be imposed, direct an operation to be performed upon such person for the prevention of procreation.

3 a. *First Sterilization Laws of California.*

The bill was introduced on February 8, 1909, by Senator W. F. Price, of Santa Rosa, California.

It passed the Senate March 16, 1909—21 ayes, 1 no; the House March 22, 1909—41 ayes, 0 noes.

It was approved April 26, 1909, by Governor James N. Gillett.

It appears on the California statutes of 1909 as Chapter 720 on page 1093.

(It was repealed and substituted for by Chapter 363, sec. 4, June 13, 1913).

AN ACT to permit asexualization of inmates of the state hospitals and the California Home for the Care and Training of Feeble-Minded Children and of convicts in the state prisons.

The people of the State of California, represented in Senate and Assembly, do enact as follows:

Section 1. Whenever in the opinion of the medical superintendent of any state hospital, or the superintendent of the California Home for the Care and Training of Feeble-Minded Children, or of the resident physician in any state prison, it would be beneficial and conducive to the benefit of the physical mental, or moral condition of any inmate of said state hospital, home, or state prison, to be asexualized, then such superintendent or resident or resident physician shall call in consultation the general superintendent of the state hospital and the secretary of the state board of health, and they shall jointly examine into all the particulars of the case with the said superintendent or resident physician, and if in their opinion, or in the opinion of any two of them, asexualization will be beneficial to such inmate, patient, or convict, they may perform the same; *Provided,* that in the case of an inmate or convict confined in any of the state prisons of this state, such operation shall not be performed unless the said inmate or convict has been committed to a state prison in this or in some other state or country at least two times for some sexual offense, or at least three times for any other crime, and shall have given evidence while an inmate in a state prison in this state that he is a moral and sexual pervert; *and provided further,* that in the case of convicts sentenced to state prison for life who exhibit continued evidence of moral and sexual depravity, the right to asexualize them, as provided in this act, shall apply, whether they have been inmates of a state prison either in this or any other state or country more than one time.

3 b. *Second Sterilization Law of California.*

This statute repeals the first sterilization law, Chapter 720 on page 1093, April 26, 1909.

The bill was introduced on January 28, 1913, by Senator Edwin M. Butler, of Los Angeles, Cal.

It passed the Senate April 22, 1913—21 ayes, 4 noes; the House May 10, 1913—40 ayes, 24 noes.

It was approved June 13, 1913, by Governor Hiram W. Johnson.

It appears on the California statutes as Chapter 363; Senate bill 881.

AN ACT to provide for the asexualization of the inmates of state hospitals for the insane, the Sonoma State Home, of convicts in the state prisons, and of idiots, and repealing an act entitled "An act to permit asexualization of inmates of the state hospitals and the California Home for the Care and Training of Feeble-Minded Children and of convicts in the state prisons," approved, April 26, 1909.

The people of the State of California do enact as follows:

SECTION 1. Before any person who has been lawfully committed to any state hospital for the insane, or who has been an inmate of the Sonoma State Home, and who is afflicted with hereditary insanity or incurable chronic mania or dementia shall be released or discharged therefrom, the state commission in lunacy may in its discretion, after a careful investigation of all the circumstances of the case, cause such a person to be asexualized, and such asexualization, whether with or without the consent of the patient, shall be lawful and shall not render said commission, its members or any person participating in the operation liable either civilly or criminally.

SEC. 2. Whenever in the opinion of the resident physician of any state prison it will be beneficial and conducive to the benefit of the physical, mental, or moral condition of any recidivist lawfully confined in such state prison to be asexualized, then such physician shall call in consultation the general superintendent of state hospitals and the secretary of the state board of health, and they shall jointly examine into the particulars of the case with the said resident physician, and if in their opinion or the opinion of any two of them, asexualization will be beneficial to such recidivist, they may perform the same; *provided,* that such operation shall not be performed unless the said recidivist has been committed to a state prison in this or some other state or country at least two times for rape, assault with intent to commit rape, or seduction, or at least three times for any other crime or crimes, and shall have given evidence while an inmate of a state prison in this state that he is a moral or sexual degenerate or pervert; *and provided, further,* that in the case of convicts sentenced to state prison for life, who exhibit continued evidence of moral and sexual depravity, the right to asexualize them, as provided in this section, shall apply whether they shall have been inmates of a state prison in this or any other country or state more than one time or not; *pro-*

vided, further, that nothing in this act shall apply to or refer to any voluntary patient confined or kept in any state hospital of this state.

SEC. 3. Any idiot, if a minor, may be asexualized by or under the direction of the medical superintendent of any state hospital, with the written consent of his or her parent or guardian, and if an adult, then with the written consent of his or her lawfully appointed guardian, and upon the written request of the parent or guardian or any such idiot or fool, the superintendent of any state hospital shall perform such operation or cause the same to be performed without charge therefor.

SEC. 4. An act entitled "An act to permit asexualization of inmates of the state hospitals and the California Home for the Care and Training of Feeble-Minded Children, and of convicts in the state prison," approved April 26, 1909, is hereby repealed.

4. *Sterilization Law of Connecticut.*

The bill was introduced on February 2, 1909, by Representative Wilbur F. Tomlinson, of Danbury, Conn.

It passed the House July 20, 1909—130 ayes, 28 noes; the Senate July 28, 1909.

It was approved August 12, 1909, by Governor F. B. Weeks.

It appears on the Connecticut statutes as Public Acts 1909, Chapter 209. (Substitute for House bill No. 123).

AN ACT concerning operations for the prevention of procreation.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

SECTION 1. The directors of the state prison and the superintendents of the state hospitals for the insane at Middletown and Norwich are hereby authorized and directed to appoint for each of said institutions, respectively, two skilled surgeons, who, in conjunction with the physician or surgeon in charge at each of said institutions, shall constitute a board, the duty of which shall be to examine such inmates of said institutions as are reported to them by the warden, superintendent, or the physician or surgeon in charge, to be persons by whom procreation would be inadvisable. Such board shall examine the physical and mental condition of such persons and their record and family history, so far as the same can be ascertained, and if, in the judgment of a majority of said board, procreation by any such person would produce children with an inherited tendency to crime, insanity, feeble-mindedness, idiocy, or imbecility, and there is no probability that the condition of any such person so examined will improve to such an extent as to render procreation by any such person advisable, or if the physical or mental condition of any such person will be substantially improved thereby, then said board shall appoint one of its members to perform the operation of vasectomy or oophorectomy, as the case may be, upon such person. Such operation shall be performed in a safe and humane manner, and the board making such examination and the surgeon performing such operation shall receive from the state such compensation for services rendered as the warden of the state prison or the superintendent of either of such hospitals shall deem reasonable.

SEC. 2. Except as authorized by this act, every person who shall perform, encourage, assist in, or otherwise promote the performance of either of

the operations described in section one of this act, for the purpose of destroying the power to procreate the human species, or any person who shall knowingly permit either of such operations to be performed upon such person, unless the same shall be a medical necessity, shall be fined not more than one thousand dollars, or imprisoned in the state prison not more than five years or both.

5. *Sterilization Law of Nevada.*

The bill was introduced March 3, 1911, by the Code Commission not as a separate bill, but as part of the Crimes and Punishments bill.

It passed the Senate March 10, 1911—17 ayes, 1 no, 1 absent; the House March 14, 1911—34 ayes, 7 noes, 4 absent, 4 not voting. It was approved March 17, 1911, by Governor Tasker L. Oddie.

It appears on the Nevada statutes as Section 28 of the Crimes and Punishment Act.

PREVENTION OF PROCREATION: Whenever any person shall be adjudged guilty of carnal abuse of a female person under the age of ten years, or of rape, or shall be adjudged to be an habitual criminal, the court may, in addition to such other punishment or confinement as may be imposed, direct an operation to be performed upon such person for the prevention of procreation; *provided,* the operation so performed shall not consist of castration.

6 a. *First Sterilization Law of Iowa.*

The bill was introduced on February 17, 1911, by Representative Eli C. Perkins, of Delhi, Iowa.

It passed the House March 28, 1911—64 ayes, 13 noes; the Senate April 6, 1911—32 ayes, 0 noes.

It was approved April 10, 1911, by Governor B. F. Carroll.

It appears on the Acts of the Thirty-fourth General Assembly of Iowa (1911) as Chapter 129.

(It was repealed and substituted for by Chapter 187, Acts of the Thirty-fifth General Assembly April 19, 1913).

AN ACT to prevent the procreation of habitual criminals, idiots, feeble-minded, and imbeciles. [Additional to title twelve (XII) of the code, relating to the police of the state.]

Be it enacted by the General Assembly of the State of Iowa:

SECTION 1. *Unsexing of Criminals, Idiots, etc.* That it shall be the duty of the managing officer of each public institution in the state, entrusted with the custody or care of criminals, idiots, feeble-minded, imbeciles, drunkards, drug fiends, epileptics, and syphilitics, and they are hereby authorized and

directed to annually, or oftener, examine into the mental or physical condition of the inmates of such institutions, with a view to determining whether it is improper or inadvisable to allow any of such inmates to procreate; and to annually, or oftener, call into consultation the members of the state board of parole. The members of such board and the managing officer and the surgical superintendent of such institution shall judge of such matters. If a majority of them decide that procreation by any such inmate would produce children with a tendency to disease, crime, insanity, feeble-mindedness, idiocy, or imbecility, and there is no probability that the condition of any such inmate so examined will improve to such an extent as to render procreation by any such inmate advisable, or if the physical or mental condition of any such inmate will be materially improved thereby, or if such inmate is an epileptic or syphilitic, or gives continued evidence while an inmate of such institution that he or she is a moral or sexual pervert, then the surgeon of the institution shall perform the operation of vasectomy or ligation of the fallopian tubes, as the case may be, upon such person. Provided, that such operation shall be performed upon any convict or inmate of such institution who has been convicted of prostitution or violation of the law, as laid down in chapter two hundred and sixteen (216)*, acts of the thirty-third general assembly, or who has been twice convicted of some other sexual offense, or has been three times convicted of felony, and each such convict or inmate shall be subjected to this same operation of vasectomy or ligation of the fallopian tubes, as the case may be, by the surgeon of the institution.

SEC. 2. *Penalty.* Except as authorized in this act, every person who shall perform, encourage, assist in or otherwise promote the performance of either of the operations described in section 1 of this act, for the purpose of destroying the power to procreate the human species, or any person who shall knowingly permit either of such operations to be performed upon such persons, unless the same shall be a medical necessity, shall be fined not more than one thousand ($1000.00) dollars, or imprisoned in the county jail not to exceed one year, or both.

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*The full text of Chapter 216 is as follows:

CHAPTER 216—LAWS OF THE THIRTY-THIRD IOWA GENERAL ASSEMBLY.

Detention or Confining of Females by Force or Intimidation for Purposes of Prostitution.

S. F. 216.

AN ACT prohibiting the detention or confinement of any female in any house, room, building, or premises by force, false pretence, or intimidation, for purposes of prostitution or with intent to cause such female to become a prostitute, and providing a punishment for the violation thereof. (Additional to chapter nine (9) of title twenty-four (XXIV) of the code relating to offenses against chastity, morality and decency).

Be it enacted by the General Assembly of the State of Iowa:

SECTION 1. *Detention or confinement of females for prostitution purposes.* Whoever shall unlawfully detain or confine any female by force, false pretence, or intimidation in any room, house, building, or premises in this state, against the will of such female, for purposes of prostitution or with intent to cause such female to become a prostitute, and be guilty of fornication or concubinage therein, or shall by force, false pretence, confinement, or intimidation attempt to prevent any female so as aforesaid detained, from leaving such room, house, building, or premises, and whoever aids, assists, or abets by force, false pretence, confinement, or intimidation, in keeping, confining, or unlawfully detaining any female in any room, house, building, or premises in this state, against the will of such female, for the purpose of prostitution, fornication, or concubinage, shall, on conviction, be imprisoned in the penitentiary not less than one nor more than ten years.

Approved March 25, A. D. 1909.

6 b. *Second Sterilization Law of Iowa.*

This statute repeals the first sterilization law, Chapter 129, Acts of the Thirty-fourth General Assembly, April 10, 1911.

The bill was introduced March 10, 1913, by Representative Col. Halgrims, of Humboldt, Iowa.

It passed the House April 17, 1913—61 ayes, 7 noes; the Senate April 18, 1913—27 ayes, 11 noes.

It was approved April 19, 1913, by Governor George W. Clarke.

It appears on the Iowa laws of 1913, Chapter 187, Acts of the Thirty-fifth General Assembly.

PREVENTION OF THE PROCREATION OF HABITUAL CRIMINALS, IDIOTS, FEEBLE-MINDED, INSANE AND DISEASED AND DEGENERATE PERSONS.

H. F. 641.

AN ACT to repeal the law as it appears in chapter one hundred twenty-nine (129) of the acts of the thirty-fourth general assembly, and to enact a substitute therefor relating to the prevention of the procreation of criminals, rapists, idiots, feeble-minded, imbeciles, lunatics, drunkards, drug fiends, epileptics, syphilitics, moral and sexual perverts, and diseased and degenerate persons.

Be it enacted by the General Assembly of the State of Iowa:

SECTION 1. *Unsexing of criminals, idiots, etc. Board of Parole. Duties.* That it shall be the duty of the state board of parole, with the managing officer and the physician of each public institution in the state, entrusted with the care and custody of criminals, rapists, idiots, feeble-minded, imbeciles, lunatics, drunkards, drug fiends, epileptics, syphilitics, moral and sexual perverts, and diseased and degenerate persons, and they are hereby authorized and directed to, annually or oftener, examine into the mental and physical condition, the records and family history of the inmates of such institutions, with a view of determining whether it is improper or inadvisable to allow any of such inmates to procreate and to judge of such matters. If a majority of them decide that procreation by any such inmates would produce children with a tendency to disease, deformity, crime, insanity, feeble-mindedness, idiocy, imbecility, epilepsy, or alcoholism, or if the physical or mental condition of any such inmate will probably be materially improved thereby, or if such inmate is an epileptic or syphilitic, or gives evidence, while an inmate of such institution, that he or she is a moral or sexual pervert, then the physician of the institution, or one selected by him, shall perform the operation of vasectomy or ligation of the Fallopian tubes, as the case may be, upon such person.

Provided that such operation shall be performed upon every convict or inmate of such institution who has been convicted of prostitution or violation of the law as laid down in chapter two hundred sixteen (216)* of the acts of the thirty-third general assembly, or who has been twice convicted of other sexual offenses, including soliciting, as defined in section four thousand nine hundred seventy-five-c (4975-c)** of the supplement to the code, 1907, or who has been twice convicted of a felony, and each such convict or inmate shall be subject to this same operation of vasectomy or ligation of the Fallopian tubes, as the case may be, by the physician of the institution, or one selected by him.

SEC. 2. *Certain persons—operations upon application.* Those afflicted with syphilis or epilepsy may apply to the board of parole, or any judge of the district court, and upon order of such board or judge, the operation of vasectomy or ligation of the Fallopian tubes may be performed upon such person, and any law restricting marriage of such persons shall be void and of none effect, in case one of the contracting parties has submitted to such operation and the same was known to both parties before their marriage.

SEC. 3. *Annual report.* The board of parole shall make an annual report to the governor of the state, fully covering their proceedings under the authority of this act, and also observations and statistics regarding its benefits.

SEC. 4. *Unsexing prohibited except as authorized—penalty.* Except as authorized in this act, every person who shall perform, encourage, assist in or otherwise promote the performance of either of the operations described in section one (1) of this act, for the purpose of destroying the power to procreate the human species, or any person who shall knowingly permit either of such operations to be performed upon such persons, unless the same shall be a medical necessity, shall be fined not more than one thousand dollars ($1000.00), or imprisoned in the penitentiary not to exceed one year, or both.

7. *Sterilization Law of New Jersey.*

The bill was introduced on February 27, 1911, by Representative B. H. White, of Mount Holly, New Jersey.

It passed the House March 28, 1911—33 ayes, 6 noes; the Senate April 18, 1911—12 ayes, 0 noes.

It was approved April 21, 1911, by Governor Woodrow Wilson.

It appears on the New Jersey statutes of 1911 as Chapter 190.

AN ACT to authorize and provide for the sterilization of feeble-minded (including idiots, imbeciles and morons), epileptics, rapists, certain criminals and other defectives.

WHEREAS, heredity plays a most important part in the transmission of feeble-mindedness, epilepsy, criminal tendencies, and other defects:

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*See footnote page 19.

**Sec. 4975-c. *Soliciting for the purpose of prostitution—penalty.* That any person who shall ask, request, or solicit another to have carnal knowledge with any female for a consideration or otherwise, shall be punished by imprisonment in the penitentiary not exceeding five years, or imprisonment in the county jail not exceeding one year, or by a fine not exceeding one thousand dollars, or both such fine and jail imprisonment. (31 G. A., ch. 165.)

Be it enacted by the Senate and General Assembly of the State of New Jersey:

1. Immediately after the passage of this act, the Governor shall appoint by and with the advice of the Senate, a surgeon and neurologist, each of recognized ability, one for a term of three (3) years and one for a term of five years (5); their successors each to be appointed for the full term of five years, who in conjunction with the Commissioner of Charities and Corrections shall be known as and is hereby created the "Board of Examiners of Feeble-minded (including idiots, imbeciles and morons), Epileptics and other Defectives," whose duty it shall be to examine into the mental and physical condition of the feeble-minded, epileptic, certain criminal and other defective inmates confined in the several reformatories, charitable, and penal institutions in the counties and state. Any vacancy occuring in said Board of Examiners shall be filled by appointment of the Governor for the unexpired term.

2. The criminals who shall come within the operation of this law shall be those who have been convicted of the crime of rape, or of such succession of offenses against the criminal law as in the opinion of this board of examiners shall be deemed to be sufficient evidence of confirmed criminal tendencies.

3. Upon application of the superintendent or other administrative officer of any institution in which such inmates are or may be confined or upon its own motion, the said board of examiners may call a meeting to take evidence and examine into the mental and physical condition of such inmates confined as aforesaid, and if said board of examiners, in conjunction with the chief physician of the institution, unanimously find that procreation is inadvisable and that there is no probability that the condition of such inmate so examined will improve to such an extent as to render procreation by such inmate advisable, it shall be lawful to perform such operation for the prevention of procreation as shall be decided by said board of examiners to be most effective, and thereupon it shall and may be lawful for any surgeon qualified under the laws of this state, under the direction of the chief physician of said institution, to perform such operation; previous to said hearing the said board shall apply to any judge of the Court of Common Pleas, of the county in which said person is confined, for the assignment of counsel to represent the person to be examined, said counsel to act at said hearing and in any subsequent proceedings, and no order made by said board of examiners shall become effective until five days after it shall have been filed with the clerk of the Court of Common Pleas, of the county in which said examination is held, and a copy shall have been served upon the counsel appointed to represent the person examined, proof of service of the said copy of the order to be filed with the clerk of the Court of Common Pleas. All orders made under the provisions of this act shall be subject to review by the Supreme Court or any justice thereof, and said court may upon appeal from any order grant a stay which shall be effective until such appeal shall have been decided. The judge of the Court of Common Pleas appointing any counsel under this act may fix the compensation to be paid him, and it shall be paid as other court expenses are now paid.

No surgeon performing an operation under the provisions of this law shall be held to account therefor, but the order of the board of examiners shall be a full warrant and authority therefor.

4. The record taken upon the examination of every such inmate, signed by the said board of examiners, shall be preserved in the institution where such inmate is confined, and a copy thereof filed with the Commissioner of Charities and Corrections, and one year after the performing of the operation the superintendent or other administrative officer of the institution wherein such inmate is confined shall report to the board of examiners the condition

of the inmate and the effect of such operation upon such inmate. A copy of the report shall be filed with the record of the examination.

5. There shall be paid, out of the funds appropriated for maintenance of such institutions, to each physician of said board of examiners, a compensation of not more than ten ($10) dollars per diem for each day actually given to such work or examination, and his actual and necessary expenses in going to, holding and returning from such examination.

When in the judgment of the board of examiners it is necessary to secure the assistance of a surgeon outside the medical staff of the institution to perform or assist in said operation, the necessary expenses of such surgeon shall be paid from the maintenance account of such institution.

6. If any provisions of this act shall be questioned in any court, and the provisions of this act with reference to any class of persons enumerated therein shall be held to be unconstitutional and void, such determination shall not be deemed to invalidate the entire act, but only such provisions thereof with reference to the class in question as are specifically under review and particularly passed upon by the decision of the court.

7. This act shall take effect immediately.

8. *Sterilization Law of New York.*

The bill was introduced on March 5, 1912, by Assemblyman Robert P. Bush, of Horseheads, N. Y.

It passed the House March 25, 1912—78 ayes, 9 noes; the Senate March 29, 1912—48 ayes, 0 noes.

It was approved April 16, 1912, by Governor John A. Dix.

It appears on the New York statutes as Public Health Law (L. 1909, Chapter 49), Art. 19 (Section 350-353), as added by L. 1912, Chapter 445.

AN ACT to amend the public health law, in relation to operations for the prevention of procreation.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Article eighteen of chapter forty-nine of the laws of nineteen hundred and nine, entitled "An act in relation to the public health, constituting chapter forty-five of the consolidated laws," as renumbered article nineteen by section five of chapter one hundred and twenty-eight of the laws of nineteen hundred and eleven, is hereby made article twenty thereof, and sections three hundred and fifty and three hundred and fifty-one of such chapter are hereby renumbered sections three hundred and sixty and three hundred and sixty-one, respectively.

SEC. 2. Such chapter is hereby amended by inserting therein a new article, to be article nineteen thereof, to read as follows:

ARTICLE 19.

Operations for the Prevention of Procreation.

Section 350. Board of Examiners; compensation and expenses.

Section 351. General powers and duties of the board, persons to be operated upon.
Section 352. Appointment of counsel to persons to be operated upon.
Section 353. Unauthorized and illegal operations.

SECTION 350. *Board of Examiners; compensation and expenses.* Immediately after the passage of this act the Governor shall appoint one surgeon, one neurologist and one practitioner of medicine, each with at least ten years' experience in the actual practice of his profession, for a term of five years, to be known as the board of examiners of feeble-minded, criminals and other defectives, which board is hereby created. The compensation of the members of such board shall be ten dollars per diem for each day actually engaged in the performance of the duties of the board, and their actual and necessary traveling expenses. Any vacancies occurring in said board shall be filled by appointment of the Governor for the unexpired term.

SEC. 351. *General powers and duties of the board; persons to be operated upon.* It shall be the duty of the said board to examine into the mental and physical condition and the record and family history of the feeble-minded, epileptic, criminal and other defective inmates confined in the several state hospitals for the insane, state prisons, reformatories, and charitable and penal institutions in the state, and if in the judgment of the majority of said board procreation by any such person would produce children with an inherited tendency to crime, insanity, feeble-mindedness, idiocy, or imbecility, and there is no probability that the condition of any such person so examined will improve to such an extent as to render procreation by any such person advisable, or if the physical or mental condition of any such person will be substantially improved thereby, then said board shall appoint one of its members to perform such operation for the prevention of procreation as shall be decided by said board to be most effective.

The criminals who shall come within the operation of this law shall be those who have been convicted of the crime of rape or of such succession of offenses against the criminal law as in the opinion of the board shall be deemed to be sufficient evidence of confirmed criminal tendencies.

SEC. 352. *Appointment of counsel to person to be operated upon.* The board of examiners shall apply to any judge of the Supreme Court or county judge of the county in which said person is confined for the appointment of counsel to represent the person to be examined. Said counsel to act at a hearing before the judge and in any subsequent proceedings, and no order made by said board shall become effective until five days after it shall have been filed with the clerk of the court and a copy shall have been served upon the counsel appointed to represent the person examined and proof of service of said copy of the order to be filed with the clerk of the court. All orders made under the provisions of this act shall be subject to review by the Supreme Court or any justice thereof, and said court may upon appeal from any order grant a stay, which shall be effective until such appeal shall have been decided. The judge of the court appointing any counsel under this act may fix the compensation to be paid him. No surgeon performing an operation under the provisions of this act shall be held to account therefor. The record taken upon the examination of every such inmate, signed by the said board of examiners, shall be preserved by the institution where said inmate is confined, and one year after the performance of the operation the superintendent or other administrative officer of the institution wherein such inmate is confined shall report to the board of examiners the condition of the inmate and effect of such operation upon such inmate, and a copy of the report shall be filed with the record of the examination.

Sec. 353. *Unauthorized and illegal operations.* Except as authorized by this act, every person who shall perform, encourage, assist in, or otherwise permit the performance of the operation for the purpose of destroying the power to procreate the human species or any person who shall knowingly permit such operation to be performed upon such person, unless the same shall be a medical necessity, shall be guilty of a misdemeanor.

Section 3. This act shall take effect immediately.

9. *Sterilization Law of North Dakota.*

The bill was introduced on February 8, 1913, by Representative W. H. Northrup, Luverne, North Dakota.

It passed the House February 17, 1913—73 ayes, 20 noes; the Senate March 6, 1913—34 ayes, 4 noes.

It was approved March 13, 1913, by Governor L. B. Hanna.

It appears on the North Dakota statutes as Chapter 56 of the laws of 1913.

AN ACT to prevent procreation of confirmed criminals, insane, idiots, defectives, and rapists; providing for a board of medical examiners and making a provision for carrying out of same.

Be it enacted by the Legislative Assembly of the State of North Dakota:

Section 1. Whenever the warden, superintendent, or head of any state prison, reform school, state school for feeble-minded, or of any state hospital or state asylum for insane shall certify in writing that he believes that the mental or physical condition of any inmate would be improved thereby, or that procreation by such inmate would be likely to result in defective or feeble-minded children with criminal tendencies, and that the condition of such inmate is not likely to improve, so as to make procreation by such person desirable or beneficial to the community, it shall be lawful to perform a surgical operation for the sterilization of such inmate as hereafter provided.

Sec. 2. For the purpose of carrying into effect the provisions of this act the chief medical officer of any such institution, the secretary of the state board of health and one other competent physician and surgeon, whose appointment is hereinafter provided for, shall constitute the board of examiners for such institution. The third member of such board shall be a competent physician and surgeon of good standing and of at least ten years' practice of his profession in North Dakota, who shall forthwith be appointed by the state board of control and who shall serve during the pleasure of said board of control. One such appointment may be made in each county in which one of such institutions is located, or one may be appointed to act for any two or more of such institutions to be named in the letter of appointment. The per diem compensation of such member so appointed shall be fixed by the state board of control in the letter of appointment and shall not be in excess of $10.00 per day, a duplicate of this letter shall be filed with the state auditor, and the per diem and actual necessary expenses of such member shall be allowed and paid in the same manner as is provided for by law for the payment of the salaries and expenses of the members, agents, and employees of the state board of control.

SEC. 3. When the superintendent of any such institution shall deem it advisable that such operation be performed on any one or more of the inmates thereof he shall make such recommendation in writing, signed by him, and file one copy thereof with the board of control and one with the chief medical officer of such institution, whereupon the chief medical officer of such institution shall forthwith call a meeting of such board of examiners, to be held at such institution at a date not less than fifteen days after the issuance of such call, and such call shall be in writing, signed by such chief medical officer, and shall clearly set forth the date and object of such meeting and shall contain the names of all inmates whose cases are to be considered at such meeting.

SEC. 4. At such meeting such board of examiners shall diligently inquire into the mental and physical condition of each inmate so considered, and as far as practicable into his family history, and for that purpose any member of said board may administer an oath to any witness whom it is desired to examine, and such hearing may be adjourned from day to day, and, if necessary, sessions may be held elsewhere than at such institution.

SEC. 5. After fully inquiring into the condition of each such person such board of examiners shall make separate written findings for each of the persons whose condition has been inquired into, and such findings shall either order that such inmate be sterilized by such operation as may be deemed best, or shall find that sterilization is not necessary or desirable, or shall continue the case to a time and place therein named or upon future call for further observation and inquiry, and such hearings shall be conducted according to the provisions of section 4 of this act. If such board in its findings order such operation upon such inmate, it shall, in such findings, designate what operation is to be performed and its purpose, and shall designate some skilled surgeon, who may not be one of their own number, who shall perform it.

SEC. 6. Such institutions shall keep all files in any proceedings under this act and full minutes of such meetings, and for that purpose the chief medical officer of such institution shall be the secretary of such board of examiners and custodian of its records.

SEC. 7. When in the opinion of the chief medical officer of any such institution such operation would be necessary or desirable upon any inmate thereof, for any of the purposes herein set forth, and such inmate requests in writing that such operation be performed, or consents thereto in writing, he may perform or procure the performance of such operation without bringing the matter to the attention of such board of examination. When any such operation is performed under the provisions of this section it shall be the duty of the chief medical officer who performs or procures the performance of such operation to immediately report to the state board of control the details of such operation upon such blanks as the board of control may prescribe.

SEC. 8. Whenever the state's attorney of any county shall have reason to believe that any person who shall be convicted of felony has been twice or more previously convicted of felonies in North Dakota and elsewhere, it shall be the duty of such state's attorney to investigate and to secure at the expense of the county, transcripts of records of conviction from other counties and states, and also such evidence of identification as may be obtained. Such proof when obtained shall be forwarded to the state board of control, who shall thereupon notify the chief medical officers of the institution to which such person is committed and the secretary of the state board of health, and such case shall be dealt with in accordance with the procedure stated in section 1 of this act.

SEC. 9. No surgeon who shall skillfully perform any operation as authorized by this act shall be held accountable therefor, but the findings and order of this said board of examiners or the court, or the consent of such inmate and parents or guardian shall be his full warrant and authority therefor.

SEC. 10. It shall be the duty of the chief medical officer of any such institution in which any sterilized inmates are confined to make careful observa-

tion of each of such inmates, particularly with the view to ascertaining the effect of such operation upon the moral, mental and physical condition of such sterilized persons, and once a year, and oftener if called for by the Governor, to make report on each of such persons in writing, keeping a copy of such report on file in such institution and furnishing copies to the Governor, the state board of control, and the secretary of the state board of health.

SEC. 11. (Emergency.) WHEREAS, heredity plays a most important part in the transmission of crime, insanity, idiocy, and imbecility, and our institutions for degenerates are overcrowded on account of the lack of adequate means of checking the ever-increasing numbers of this class; and whereas, there is now no provision in law authorizing an operation for the sterilization of defective persons, this act shall take effect and be in force from and after its passage and approval.

10. *Sterilization Law of Michigan.*

The bill was introduced on January 13, 1913, by Representative Arthur Odell, of Allegan, Michigan.

It passed the House February 12, 1913—72 ayes, 16 noes; the Senate March 19, 1913—21 ayes, 9 noes.

It was approved April 1, 1913, by Governor Woodbridge N. Ferris.

It appears on the Michigan statutes of 1913 as Act No. 34, Public Acts 1913, page 52.

AN ACT to authorize the sterilization of mentally defective persons maintained wholly or in part by public expense in public institutions in this state, and to provide a penalty for the unauthorized use of the operations provided for.

The people of the State of Michigan enact:

SECTION 1. Authority is given to the management of any institution maintained wholly or in part by public expense, in whose custody may be held individuals who have been by a court of competent jurisdiction adjudged to be and who are mentally defective or insane, to render incapable of procreation, by vasectomy or salpingectomy or by the improvement of said surgical operation which is least dangerous to life and will best accomplish the purpose, any person who is mentally defective or insane.

SEC. 2. The boards of the aforesaid institutions and the physicians or surgeons in charge of each of said institutions shall for each of their respective institutions constitute a board, the duty of which shall be to examine such inmates of said institutions as are reported to them by the warden or medical superintendent to be persons by whom procreation would be inadvisable. Such board shall receive the report of insanity experts hereinafter mentioned, examine the physical and mental condition of such persons and their record and family history so far as the same can be ascertained, and if in the judgment of a majority of said board procreation by any such person would produce children with an inherited tendency to insanity, feeble-mindedness, idiocy, or imbecility, and there is no probability that the condition of such person so examined will improve to such an extent as to render procreation by any such

person advisable, or if the physical or mental condition of any such person will be substantially improved thereby, then said board shall direct a competent physician or surgeon, with such other assistants as may be necessary, to perform the operation of vasectomy or salpingectomy, or any other operation or improvement on vasectomy or salpingectomy recognized by the medical profession, as the case may be, upon such person. Such operation shall be performed in a safe and humane manner, and the board making such examination, and the institution physician or surgeon, shall receive no extra compensation therefor: Provided, That at least thirty days' notice shall be given to the parents or guardian of such person before the performing of such operation; said notice to specify the purpose, time and place of such examination: Provided further, That when said parents or guardian object to the performance of such operation, then the question of the sanity of such person shall be referred to the probate court of the county in which the institution is located, where the question of the sanity and the necessity for this operation shall be determined as in other insane cases before such courts.

SEC. 3. In case an institution has no physician at its head authority is given to the board of managers to cause such operation to be performed, to hire expert physicians to examine and report on the condition of the subject, and to perform the operation with such other assistants as may be necessary: Provided, Before said operation is ordered there shall first be secured from two physicians having qualifications prescribed by law for examiners in insanity a written statement or report that such operation is desirable in the interests of the patient or the good of the community: And, Provided further, That these physicians shall be allowed for their services the compensation fixed by statutes for the examination and certification of an insane person. The several sums necessary to carry out the provisions of this act shall be certified to be correct by the respective boards and shall be paid out of the general fund of the State upon the warrant of the auditor-general.

SEC. 4. In relation to each individual person sterilized under the provisions of this act, the board of control of the institution in which said person is an inmate shall file with the State Board of Public Health of Michigan a written record setting forth the name, age, sex, nationality, type or class of mental defectiveness of said person, the nature of the operation performed, the subsequent mental and physical condition as affected by said operation: Provided, That said records shall not be for public inspection, but may be open to inspection of the members of the board of control of the aforesaid institutions and of the members of the immediate family of the person operated upon, or any physician or surgeon designated by them.

SEC. 5. Except as authorized by this act, every person who shall perform, encourage, assist in, or otherwise promote the performance of either of the operations described in section one of this act, for the purpose of destroying the power to procreate the human species, or any person who shall knowingly permit either of such operations to be performed upon such person, unless the same shall be a medical necessity, shall be guilty of a felony, and upon conviction thereof shall be fined not more than one thousand dollars or imprisoned in the state prison not more than five years, or both at the discretion of the court before whom the said person or persons were so convicted.

11. *Sterilization Law of Kansas.*

The bill was introduced on February 7, 1913, by Representative A. B. Scott, of Jetmore, Kansas.

It passed the House February 24, 1913—85 ayes, 16 noes; the Senate March 10, 1913—29 ayes, 5 noes.

It was approved March 14, 1913, by Governor George H. Hodges.

It appears on the Kansas statutes as Chapter 305, pages 525-526 of the Session Laws of 1913.

AN ACT to prevent the procreation of habitual criminals, idiots, epileptics, imbeciles, and insane, and providing a penalty for the violation thereof.

Be it enacted by the Legislature of the State of Kansas:

Section 1. That it shall be the duty of managing officers of all state institutions of this state entrusted with the care and custody of habitual criminals, idiots, epileptics, imbeciles and insane, and they are hereby authorized and directed to obtain the advice and professional services of competent surgical assistants, who, jointly with the physician or surgeon in charge of the institution in which any of such inmates shall be, shall constitute the authority whose duty it shall be to examine such inmate or inmates of the several institutions as are deemed to be improper and inadvisable to allow to procreate. Such authority shall examine the physical and mental condition of such inmate or inmates, the history thereof so far as can be ascertained, and if, in the judgment of such authority, procreation by any such inmate or inmates would produce children with an inherited tendency to crime, insanity, feeblemindedness, epilepsy, idiocy, or imbecility, and there is no probability that the condition of any such inmate or inmates so examined will improve to such an extent as to render procreation by any such inmate or inmates advisable, or if the physical or mental condition of any such persons will be materially improved thereby, then said authority shall report their conclusions with a recommendation to the district court or any court of competent jurisdiction in and for the district from which such inmate or inmates has been committed to such institution or institutions. The court shall thereupon hear and determine the matter, and if satisfied that the subject is an habitual criminal within the meaning of this act, or is insane, an idiot, imbecile or an epileptic, and that the purposes of this act will be accomplished by such order, shall adjudge that such operation shall be performed, and shall appoint one of the authority signing such report to perform the operation of vasectomy or öophorectomy, as the case may be, upon such person. The county attorney of the county in which the hearing is had may be directed by the court to represent the state in the proceedings. Such operation shall be performed in a safe and humane manner, and the surgeon performing the operation shall receive from the state such compensation for the service rendered as the board of administration shall deem reasonable, to be paid out of the maintenance fund of the institution in which such person is confined. Provided, An habitual criminal within the meaning of this act shall be a person who has been convicted of some felony involving moral turpitude.

Sec. 2. Except as authorized by this act, every person who shall perform, encourage, assist in, and otherwise promote the performance of either of the operations, described in section 1 of this act, for the purpose of destroying the power to procreate the human species, or any person who shall knowingly permit either of such operations to be performed upon such person, unless the same shall be a medical necessity, shall be fined not more than one thousand ($1000.00) dollars, or imprisoned in the county jail not exceeding one (1) year, or both.

Sec. 3. Any managing officers herein charged with any duty specified in section 1, who shall fail, neglect or refuse for sixty days or more in the per-

formance thereof, shall be guilty of a misdemeanor and subject to a fine of not more than one hundred dollars or imprisonment in the county jail for not more than thirty days, or both such fine and imprisonment.

SEC. 4. This act shall take effect and be enforced from and after its publication in the statute book.

12. *Sterilization Law of Wisconsin.*

The bill was introduced by Senator George E. Hoyt, of Menomonee Falls, Wisconsin.

It passed the Senate July 9, 1913—24 ayes, 3 noes; the House July 25, 1913—39 ayes, 37 noes.

It was approved July 30, 1913, by Governor Francis E. McGovern.

It appears on the Wisconsin statutes as Chapter 693 of the Laws of 1913.

AN ACT to create section 561 jm of the statutes, relating to the prevention of criminality, insanity, feeble-mindedness and epilepsy.

The people of the State of Wisconsin, represented in Senate and Assembly, do enact as follows:

SECTION 1. There is added to the statutes a new section to read: Section 561jm. The state board of control is hereby authorized to appoint from time to time one surgeon and one alienist of recognized ability, whose duty it shall be, in conjunction with the superintendents of the state and county institutions who have charge of the criminal, insane, feeble-minded, and epileptic persons, to examine into the mental and physical conditions of such persons legally confined in such institutions.

2. Said board of control shall at such times as it deems advisable submit to such experts and to the superintendent of any of said institutions the names of such inmates of said institution whose mental and physical condition they desire examined, and said experts and the superintendent of said institution shall meet, take evidence and examine into the mental and physical condition of such inmates and report said mental and physical condition to the said state board of control.

3. If such experts and superintendent unanimously find that procreation is inadvisable it shall be lawful to perform such operation for the prevention of procreation as shall be decided safest and most effective; provided, however, that the operation shall not be performed except in such cases as are authorized by the said board of control.

4. Before such operation shall be performed it shall be the duty of the state board of control to give at least thirty days' notice in writing to the husband or wife, parent or guardian, if the same shall be known, and if unknown, to the person with whom such inmate last resided.

5. The said experts shall receive as compensation a sum to be fixed by the state board of control, which shall not exceed ten dollars per day and expenses, and such experts shall only be paid for the actual number of days consumed in the performance of their duties.

State and Governor Making Veto.	Date of Veto.	Persons Subject.	
1. Pennsylvania: Governor: Hon. Samuel H. Pennypacker Veto sustained in both Houses	March 30, 1905	Inmates of every institution of the State entrusted with the care of idiots and imbecile children	Decisio of I men bili con of pr
2. Oregon: Governor: Hon. George E. Chamberlain Veto sustained in both Houses	February 22, 1909	Inmates of every institution entrusted with the care of confirmed criminals, insane persons, rapists, idiots and imbeciles	Decisio of M and prob conse
3. Vermont: Governor: Hon. Allan M. Fletcher Passed over veto by Senate, veto sustained by House	January 31, 1913	Inmates in the hospitals for the insane, the State prison, reformatories and charitable and penal institutions in the State; but not applied to children under puberty, or to women over forty-five years of age For criminals convicted of rape, or convicted for third time of felony, in addition to other punishment, the court may order sterilization	Unani after condi after of th impr bili of s condi
4. Nebraska: Governor: Hon. John H. Morehead Veto sustained in both Houses	April 14, 1913	Inmates of State hospitals for the insane, State prisons, reformatories and charitable and penal institutions in the State	Decisio inin his hin the i ditio prom tial i by

State and Governor Making Veto.	Date of Veto.	Persons Subje
5. Oregon: Approved by the Governor, Hon. Oswald West, Feb. 18, 1913, to take effect June 3, 1913 Referendum duly invoked May 31, 1913, which held law in abeyance Referendum of November 4, 1913, revoked the statute by a vote of 41,767 for the statute and 53,319 against it	Referendum November 4, 1913	All inmates of the Oregon State Insane Asylum, the East tion for Feeble-minded and the Oregon State Penitenti of the institutions to be habitual criminals (i. e., those co courts of any State, and sentenced to serve in the penite person convicted of rape, when offense is committed on Lord's Oregon Laws, or on a female under the age of fo female between fourteen years and age of consent; and sexual perverts (i. e., those addicted to practice of sod bestial, and perverted sexual habits and practices prohi

Analysis of Sterilization Bills Vetoed.

State and Governor Making Veto.	Date of Veto.	Persons Subject.	Basis of Selection.	Executive Agencies Provided.	Appropriations Available for Enforcing the Act.	Type of Operation.	State's Motive.	Governor's Reasons for Making Veto.
1. Pennsylvania: Governor: Hon. Samuel H. Pennypacker Veto sustained in both Houses	March 30, 1905	Inmates of every institution of the State entrusted with the care of idiots and imbecile children	Decision by Committee of Experts and Board of Trustees, after examining physical and mental condition of subject, of the improbability of any improvement of his mental condition and the consequent inadvisability of procreation	*Committee of Experts*, consisting of at least one skilled neurologist and one skilled surgeon of recognized ability acting in conjunction with the chief physician of the institution and the Board of Trustees; the surgeon of the committee to perform the operation	No provision made for special appropriation	Prevention of procreation safest and most effective	Purely eugenic	1. Idiocy cannot be prevented by act of Assembly. 2. Nature of operation not defined and would permit cutting off heads. 3. Lack of faith in surgeons given such latitude 4. Non-ethical: "To destroy virility is to lessen capacity, the energy and the spirit which leads to effort" 5. No need of sterilizing those effectively segregated 6. Little faith in knowledge of heredity 7. Would at times lead to peritonitis, blood-poisoning, lock-jaw and death
2. Oregon: Governor: Hon. George E. Chamberlain Veto sustained in both Houses	February 22, 1909	Inmates of every institution entrusted with the care of confirmed criminals, insane persons, rapists, idiots and imbeciles	Decision of Committee of Experts and Board of Managers, after examination of the mental and physical condition of subject, of the improbability of mental improvement and the consequent inadvisability of procreation	*Committee of Experts*, consisting of two skilled surgeons of recognized ability to act in conjunction with the chief physician of the institution and the Board of Managers	No provision made for special appropriation	Prevention of procreation decided safest and most effective	Purely eugenic	1. Incurable insane and criminals so confused that it is difficult to judge whether criminals ought to be sterilized because they are in fact mentally unsound, or because they have committed crimes 2. Not drawn to meet conditions of institutional life in Oregon; penitentiary not governed by Board of Managers; Asylum governed by Board of Trustees 3. Not satisfied that so harsh treatment ought to be administered; such a principle enacted into a law should provide greater safeguards for unfortunate wards of the State 4. Liable to permit "terrible abuse of power by the authorities"
3. Vermont: Governor: Hon. Allan M. Fletcher Passed over veto by Senate, veto sustained by House	January 31, 1913	Inmates in the hospitals for the insane, the State prison, reformatories and charitable and penal institutions in the State; but not applied to children under puberty, or to women over forty-five years of age For criminals convicted of rape, or convicted for third time of felony, in addition to other punishment, the court may order sterilization	Unanimous decision by Board of Examiners, after examining subject's mental and physical condition, his record and family history, and after his hearing in court, if such is desired, of the improbability of mental and physical improvement, and the consequent inadvisability of procreation, or of the probability of substantial improvement of subject's condition thereby	*Board of Examiners of Feeble-minded Criminals and other Defectives*, consisting of one neurologist, one surgeon and one practitioner of medicine, all appointed by governor biennially, and all for a term of two years, each having had at least six years' experience. One of members of said board being chosen by board to perform operation	"Members of such board shall be paid ten dollars for each day actually spent in performance of their duties, and their actual and necessary traveling expenses." "The sum of one thousand dollars is hereby annually appropriated to carry out the provisions of this act"	For prevention of procreation to be decided by the board as safest and most effective	Purely eugenic with inmates of institutions. Partly punitive in reference to criminals convicted of rape, or three times of felony	Governor's veto based on opinion of his Attorney-General, Hon. R. E. Brown: 1. The act applies to inmates of institutions and not to those "equally unfortunate, except in matter of actual confinement * * * having greater opportunity to perpetuate the evil which this bill seeks to guard against"; unfair, unjust and inexcusable discrimination which ought not to be 2. Bill assumes that women over forty-five years of age do not conceive, mistaken notion; hence discrimination is inexcusable 3. Machinery for carrying law into effect is "inadequate, unjust, insufficient" 4. No provision for impartial trial of persons proposed for the operation 5. No provision for appeal from the decision of the board 6. State ought not to deprive individuals of "God-given powers, functions and rights in such a manner" 7. Provision for sterilizing criminals provides for "additional penalty," which "contravenes the constitution"
4. Nebraska: Governor: Hon. John H. Morehead Veto sustained in both Houses	April 14, 1913	Inmates of State hospitals for the insane, State prisons, reformatories and charitable and penal institutions in the State	Decision by Board of Examiners, after examining mental and physical condition of inmate, his record and family history, and after giving him an opportunity for a hearing in court, of the improbability of improvement of his condition and the consequent inadvisability of procreation; or of the probability of substantial improvement of inmate's condition thereby	*Board of Examiners of Criminals, Feeble-minded and other Defectives*, consisting of two physicians each with at least ten years' experience, one for term of two years, one for term of four years, appointed by Board of Commissioners of State institutions, one of members of board being appointed to perform operation. "All orders made under provisions of this act shall be subject to review by District Court, or by any judge thereof"	"The compensation of members of such board shall be ten dollars per diem for each day actually engaged in performance of duties of board and the actual and necessary traveling expenses." If hearing in court is desired, "the judge appointing any counsel under this act may fix the compensation to be paid him"	For prevention of procreation decided by board to be most effective	Purely eugenic	1. An act so far-reaching and so "intimately related to the social life of mankind" should not be thoughtlessly or hurriedly drawn 2. An experiment seems more in keeping with Paganism than with Christianity; man more than an animal 3. Mutilating the human body is drastic in the extreme, and possibly violates Bill of Rights which prohibits cruel or unusual punishment 4. Unconstitutional because it contains more than one subject 5. No valid reason why the act should "apply to wards of the State." Such wards are already segregated, and the danger sought to be obviated by this act is already guarded against

Analysis of Statute Revoked by Referendum.

State and Governor Making Veto.	Date of Veto.	Persons Subject.	Basis of Selection.	Executive Agencies Provided.	Appropriations Available for Enforcing the Act.	Type of Operation.	State's Motive.
5. Oregon: Approved by the Governor, Hon. Oswald West, Feb. 18, 1913, to take effect June 3, 1913 Referendum duly invoked May 31, 1913, which held law in abeyance Referendum of November 4, 1913, revoked the statute by a vote of 41,767 for the statute and 53,319 against it	Referendum November 4, 1913	All inmates of the Oregon State Insane Asylum, the Eastern Oregon State Hospital, the State Institution for Feeble-minded and the Oregon State Penitentiary, who are reported by the respective heads of the institutions to be habitual criminals (i. e., those convicted three times or more of a felony in the courts of any State, and sentenced to serve in the penitentiary therefor), moral degenerates (i. e., any person convicted of rape, when offence is committed on a female over the age of consent as fixed by Lord's Oregon Laws, or on a female under the age of fourteen years, with or without consent, or on a female between fourteen years and age of consent; and also those included in following definition), sexual perverts (i. e., those addicted to practice of sodomy, crime against nature, or of other gross bestial, and perverted sexual habits and practices prohibited by statute)	Those persons, who by their character and their previous unsocial acts need sterilizing, in the opinion of the State Board of Health, "for the physical, mental and moral betterment of the inmate, and for the protection of the peace, health and safety of the public"	By the *State Board of Health*, to whom shall be reported quarterly by the respective heads of State institutions desirable subjects for investigation. If investigation thereupon proves subject fit for sterilization, said Board may order superintendent of institution to perform, or to order to be performed such surgical operation as it decides upon; provision being made for subject to appeal beforehand from decision of said Board, and secure a trial *de novo* at law, if he so desires	No provision made for special appropriation	Such surgical operation as may be specified in the order of the State Board of Health as necessary for the "protection of the peace, health and safety of the State"	Eugenic, therapeutic, punitive—also for immediate protection of society

6. The record taken upon the examination of every such inmate shall be preserved and shall be filed in the office of said board of control at Madison, Wisconsin, and semi-annually after the performing of the operation, the superintendent of the institution wherein such inmate is legally confined shall report to said board of control the condition of such inmate and the effect of such operation upon such inmate.

7. The state board of control shall report biennially in its regular biennial report the number of operations performed under the authority of this section and the result of such operations.

8. There is hereby appropriated out of the state treasury, not otherwise appropriated, a sufficient amount of money to carry into effect the purposes of this section not to exceed two thousand dollars.

SECTION 2. This act shall take effect upon passage and publication.

CHAPTER III.

BILLS VETOED: TEXTS, VETO MESSAGES, AND HISTORIES.

A. TABULAR ANALYSIS OF BILLS VETOED.

Up to the present time the legislatures of four states have passed bills which have been vetoed by their respective governors. The accompanying table gives an analysis of these bills and veto messages.

B. TEXTS AND HISTORIES OF BILLS VETOED.

The full texts of these bills and veto messages follow:

1. PENNSYLVANIA.

Senate Bill 35.

Passed March 21, 1905. Vetoed March 30, 1905.

a. TEXT OF BILL.

AN ACT for the prevention of idiocy.

WHEREAS, Heredity plays a most important part in the transmission of idiocy and imbecility; therefore,

SECTION 1. Be it enacted, &c., That on the first day of July after the passage of this bill, it shall be compulsory for each and every institution in the state, entrusted exclusively or especially with the care of idiots and imbecile children, to appoint upon its staff at least one skilled surgeon, of recognized ability, whose duty it shall be, in conjunction with the chief physician of the institution to examine the mental and physical condition of the inmates.

If, in the judgment of this Committee of Experts and Board of Trustees, procreation is inadvisable, and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeon to perform

such operation for the prevention of procreation as shall be decided safest and most effective; but this operation shall not be performed except in cases that have been pronounced non-improvable after one year's test in institution.

b. VETO MESSAGE.

Commonwealth of Pennsylvania,
Executive Department,
Harrisburg, March 30, 1905.

To the Honorable, the Senate of the Commonwealth of Pennsylvania:

Gentlemen: I return herewith, without my approval, Senate Bill No. 35, entitled "An act for the prevention of idiocy."

This bill has what may be called with propriety an attractive title. If idiocy could be prevented by an act of assembly, we may be quite sure that such an act would have long been passed and approved in this state, and that such laws would have been enacted in all civilized countries. The subject of the act is not the prevention of idiocy, but it is to provide that in every institution in the state, entrusted with the care of idiots and imbecile children, a neurologist, a surgeon and a physician shall be authorized to perform an operation upon the inmates "for the prevention of procreation." What is the nature of the operation is not described, but it is such an operation as they shall decide to be "safest and most effective." It is plain that the safest and most effective method of preventing procreation would be to cut the heads off the inmates, and such authority is given by the bill to this staff of scientific experts. It is not probable that they would resort to this means for the prevention of procreation, but it is probable that they would endeavor to destroy some part of the human organism. Scientists, like all other men whose experiences have been limited to one pursuit, and whose minds have been developed in a particular direction, sometimes need to be restrained. Men of high scientific attainments are prone, in their love for technique, to lose sight of broad principles outside of their domain of thought. A surgeon may possibly be so eager to advance in skill as to be forgetful of the danger to his patient. Anatomists may be willing to gather information by the infliction of pain and suffering upon helpless creatures, although a higher standard of conduct would teach them that it is far better for humanity to bear its own ills than to escape them by knowledge only secured through cruelty to other creatures. This bill, whatever good might possibly result from it if its provisions should become a law, violates the principles of ethics. These feeble-minded and imbecile children have been entrusted to the institutions by their parents or guardians for the purpose of training and instruction. It is proposed to experiment upon them, not for their instruction, but in order to help society in the future. It is to be done without their consent, which they cannot give, and without the consent of their parents or guardians, who are responsible for their welfare. It would be in contravention of the laws which have been enacted for the establishment of these institutions. These laws have in contemplation the training and the instruction of the children. This bill assumes that they cannot be so instructed and trained. Moreover, the course it is proposed to pursue would have a tendency to prevent such training and instruction. Everyone knows, whether he be a scientist or an ordinary observer, that to destroy virility is to lessen the capacity, the energy and the spirit which lead to effort. The bill is, furthermore, illogical in its thought. Idiocy will not be prevented by the prevention of procreation among these inmates. This mental condition is due to causes many of which are entirely beyond our knowledge. It existed long before there were ever such inmates of such institutions. If this plan is to be adopted, to make it effective it should be carried into operation in the world at large, and not in institutions where the inmates are watched by nurses, kept separate, and have all the care which is likely to render procreation there very rare, if not altogether impossible. In one of these institutions, I am reliably informed,

there have only been three births in ten years. A great objection is that the bill would encourage experimentation upon living animals, and would be the beginning of experimentation upon living human beings, leading logically to results which can readily be forecasted. The chief physician, in charge at Elwyn, has candidly told us, in an article recently published upon "Heredity," that "Studies in heredity tend to emphasize the wisdom of those ancient peoples who taught that the healthful development of the individual and the elimination of the weakling was the truest patriotism—springing from an abiding sense of the fulfillment of a duty to the state." To permit such an operation would be to inflict cruelty upon a helpless class in the community which the state has undertaken to protect. However skillfully performed, it would at times lead to peritonitis, blood poisoning, lockjaw and death.

For these reasons the bill is not approved.

SAML. W. PENNYPACKER.

2. OREGON.

Passed February, 1909.

Vetoed by Gov. Geo. E. Chamberlain.

a. TEXT OF BILL.

For an act entitled an act to prevent procreation of confirmed criminals, insane persons, idiots, imbeciles and rapists; providing that superintendents and boards of managers of institutions where such persons are confined shall have the authority and are empowered to appoint a committee of experts, consisting of two (2) physicians, to examine into the mental condition of such inmates, and to define who shall be deemed confirmed criminals within the provisions of this act.

Be it enacted by the people of the State of Oregon:

Be it enacted by the Legislative Assembly of the State of Oregon:

SECTION 1. From and after the passage of this act it shall be compulsory of each and every institution in the state intrusted with the care of confirmed criminals, insane persons, idiots, rapists, and imbeciles, to appoint upon its staff, in addition to the regular institutional physicians, two (2) skilled surgeons of recognized ability, whose duty it shall be, in conjunction with the chief physician of the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and board of managers. If, in the judgment of this committee of experts and the board of managers, procreation is inadvisable, and there is no probability of improvement of the mental condition of the inmates, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as shall be decided safest and most effective; but this operation shall not be performed except in cases that have been pronounced unimprovable.

The term "confirmed criminals," as contained in this act, shall be deemed to apply to and include all persons serving a third term in any penitentiary or penal institution upon conviction of a felony.

b. VETO MESSAGE.

Salem, February 22, 1909.

To the President and Members of the Senate:

I return you herewith Senate Bill No. 68, with my disapproval. It provides to make it compulsory for each and every institution in the state intrusted with the care of confirmed criminals, insane persons, idiots, rapists and

imbeciles to appoint upon its staff, in addition to the regular institutional physicians, two skilled surgeons of recognized ability, whose duty it shall be, in conjunction with the chief physician of the institution, to examine the mental and physical condition of such inmates as are recommended by the institutional physician and board of managers. If, in the judgment of this committee of experts and the board of managers, procreation is inadvisable, and there is no probability of improved mental condition of the inmate, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as shall be decided safest and most effective, but the operation shall not be performed except in cases that have been pronounced unimprovable.

It will be observed from a reading of the act that incurable insane and criminals are so confused and confounded with each other that it is difficult to judge whether criminals are to be sterilized because they are, in fact, mentally unsound or because they are criminals who are serving a third term in the penitentiary upon conviction of a felony. The bill is not drawn to meet the conditions of institutional life in Oregon, because the penitentiary is not governed by a board of managers, but by the Governor of the state, with the assistance of a superintendent and wardens, while the asylum is under the direct supervision of a board of trustees, a superintendent and a corps of assistants. A bill departing so radically from established methods in Oregon ought to be skillfully framed and remove any ground for misunderstanding or misconstruction of its terms.

Besides these objections, I am not entirely satisfied that all of the class named in the act ought to be submitted to such harsh treatment, and if it is to become a law in this state, greater safeguards should be thrown around the unfortunate wards of the state who are mentioned in the act. Without these there might be a terrible abuse of the power attempted to be given those upon whom the duty is devolved.

I therefore return said measure to you with my veto.

GEO. E. CHAMBERLAIN, Governor.

The Oregon bill was promoted by Dr. Owens-Adair, of Portland. After vetoing this bill Governor Chamberlain wrote the following letter to Dr. Owens-Adair:

February 25, 1909.

Doctor Owens-Adair,
Portland, Oregon.

Dear Mrs. Adair:—

After looking over Senate Bill Number 68 I have concluded that it is so loosely drawn and poorly safeguards the rights of the unfortunate (against whom it is directed) that I deemed it my duty to veto it.

When I first talked to you about the matter, without knowing the terms of the Bill in detail, I was disposed to favor it, but I think such a Bill ought to be so carefully safeguarded that no abuses could be practiced against it, and I feel that this is not the case with the bill under consideration.

I have the honor to remain,

Yours very respectfully,
GEO. A. CHAMBERLAIN.

3. VERMONT.

a. TEXT OF BILL.

AN ACT to authorize and provide for the sterilization of imbeciles, feeble-minded and insane persons, rapists, confirmed criminals and other defectives.

It is hereby enacted by the General Assembly of the State of Vermont:

SECTION 1. A board of examiners of feeble-minded, criminals and other defectives is hereby created; and forthwith after the passage of this act, and biennally thereafter, the governor shall appoint one neurologist, one surgeon and one practitioner of medicine, each with at least six years' experience in the actual practice of his profession, for the term of two years from and including the first day of December of the year of appointment, as members of said board, who shall be sworn to a faithful discharge of their duties. The members of such board shall be paid ten dollars for each day actually spent in the performance of their duties, and their actual and necessary traveling expenses. A vacancy occurring in said board shall be filled by the governor for the unexpired term.

SEC. 2. Said board shall examine into the mental and physical condition and the record and family history of the insane, feeble-minded, epileptic, criminal and other defective inmates confined in the hospitals for the insane, state prison, reformatories, and charitable and penal institutions in the state; and if it appears to said board that procreation by any such person would produce children with an inherited tendency to crime, insanity, feeble-mindedness, epilepsy, idiocy, or imbecility, said board shall appoint a time and place for hearing thereon within the town where such person is confined, and shall deliver to such person a notice in writing of such hearing, which shall plainly state the time, place and purpose thereof, and shall be delivered to him by some member of said board not less than six nor more than thirty days before the day of said hearing. Said board shall be present at the time and place appointed for such hearing, and shall make such further examination and investigation with respect to such person as shall seem to said board necessary, and shall hear such person in his defense if he appears and requests a hearing.

SEC. 3. If, in the judgment of all members of said board, after said examination and hearing, procreation by such person would produce children with an inherited tendency to crime, insanity, feeble-mindedness, epilepsy, idiocy or imbecility, and if there is no probability that the condition of such person will improve to such an extent as to render procreation by such person advisable, or if, in the judgment of said board, the physical or mental condition of such person will be substantially improved thereby, and said board shall unanimously so find, said board shall order such an operation to be performed on such person for the prevention of procreation as shall be decided by said board to be safe and most effective, and shall appoint some member of said board to perform such operation, who shall perform it.

SEC. 4. Such order shall be in writing, signed by all members of said board, and shall bear the date of its issue, and shall contain the name of the person upon whom the operation is to be performed, the character of the operation and the name of the member of the board who is designated to perform it, and shall be filed by said board in the office of the county clerk of the county where such person resides.

SEC. 5. Before thus filing said order, said board shall make a copy thereof and deliver the same to the member of said board designated to perform such operation; and said order shall be his full warrant and authority for performing such operation, and no person performing an operation under the provisions of this act, in a proper and skillful manner, shall be held to account therefor in any court. But no operation so ordered shall be performed until fifteen days after the filing of said order in the office of the county clerk.

SEC. 6. Persons who shall come within the provisions of this law as criminals, and not otherwise, shall be those who have been convicted of the crime of rape, or of such succession of offenses against the criminal law as, in the opinion of said board, shall be deemed to be sufficient evidence of confirmed criminal tendency.

SEC. 7. Said board shall keep a record of its examinations, hearings and orders, and in each case where an operation is performed under its order said

board shall file with the superintendent or other administrative officer of the institution where such person is confined a copy of the record of the examination made by said board in such case; and one year after the performance of such operation said superintendent or other administrative officer shall report to said board the condition of such inmate and the effect of such operation upon such inmate.

SEC. 8. This act shall not apply to children under the age of puberty, nor to women forty-five years of age and over.

SEC. 9. Except as authorized by this act, a person who shall perform or assist in performing an operation for the purpose of destroying the power to procreate the human species, or a person who shall knowingly permit such operation to be performed upon him, unless the same shall be a medical necessity, shall be fined not more than one thousand dollars or be imprisoned not more than five years, or both.

SEC. 10. Whenever a person shall be adjudged guilty of rape, or shall be a third time convicted of felony, the court may, in addition to such other sentence as may be imposed, direct an operation to be performed upon such person for the purpose of preventing procreation, by a member of the board of examiners of feeble-minded, criminals and other defectives to be designated by said court, and such member of said board shall perform an operation for such purpose, and the sentence and order of the court shall be his full warrant and authority therefor.

SEC. 11. The sum of one thousand dollars is hereby annually appropriated to carry out the provisions of this act.

SEC. 12. This act shall take effect from its passage.

b. VETO.

The Vermont veto was based upon an opinion rendered by the Attorney-General, Hon. R. E. Brown. The opinion follows:

Referring to section 2 of this act, you will notice that the act applies only to those of the unfortunate classes named who are unfortunate enough to be actually confined "in the hospitals for the insane, state prison, reformatories and charitable and penal institutions in the state." Those equally unfortunate, except in the matter of actual confinement, including the criminals whose sentences have been completed, and all having greater opportunity to perpetuate the evil which this bill seeks to guard against, are immune from the operation of this act.

In my judgment, this is an unfair, unjust, unwarranted, and inexcusable discrimination which ought not to be, and cannot be tolerated under the supreme law, the Constitution of this state.

If there be anything of merit in the claims made by the advocates of this measure, and I do not attempt to say there is not, just why the feeble-minded or imbecile wife of a kind-hearted and tolerant husband should be permitted to give birth to offspring is quite beyond my comprehension, and yet instances of this kind are within the knowledge of almost every person of mature years. Instances of this kind are not confined to cases of the imbecile wife, but the suggestion applies equally to cases of the degenerate and imbecile husband of tke kind-hearted and tolerant wife who has sufficient means and sufficient pride to, in a measure, conceal the actual condition of her husband.

In short, the idea meant to be conveyed is this, that this section contains such an unreasonable discrimination and classification as renders the act void under the Constitution of this state.

Again referring to section 9 of this act, it is here provided that the act shall not apply to women over forty-five years of age. While it may be true that women "forty-five years of age or over," as a general rule, do not conceive and give birth to children, it is an undisputed fact, well known not

only to the medical profession, but in common experience, that women of that age do conceive and give birth to children. Here, again, is an unwarranted and inexcusable discrimination and classification which renders the act, in my judgment, void under our Constitution.

In this connection permit me to say that this discrimination would seem most unnecessary and unwarranted, because if it be true, as the act assumes, that conception in women of forty-five years or over is impossible, the execution of this law would not deprive the individual of a God-given power or function.

Again calling your attention to the provisions in Section 2, which perhaps I may be permitted to call the "machinery" for carrying the provisions of this act into effect, it seems apparent to me that these provisions are wholly inadequate, unjust, and insufficient. In this connection it ought to be sufficient to call attention to the fact that this act applies to the insane and feeble-minded confined in hospitals for insane and charitable institutions of this state and that the provisions for final hearing provides only for notice in writing delivered to such insane or feeble-minded persons, "which shall plainly state time, place and purpose thereof," and in case the person is a minor or under guardianship, a copy of such notice shall be mailed to such parent or guardian, as the case may be, addressed to his last known residence at least six days before said hearing. There is also the further provision that the board provided for "shall hear such person in his defense, if he appears and requests such hearing. And at such hearing such person shall have a right to introduce witnesses and proofs and to be represented by counsel. Said board shall give such person a fair and impartial trial." Absolutely no provision is made to enable such insane person or persons confined in a charitable institution to appear before said board and secure such impartial trial, and the fact that such person is absolutely incapable of making a request or of performing any legal act, is utterly ignored. It is also provided that upon such proof as may be adduced said board may decide the question involved. From their decision no appeal of any kind is provided for. There is absolutely no provision regarding the quality of the evidence which said board may receive. In other words, under the provisions of this act, the decision of the board is absolute and final. In this respect an act of this kind is unheard of and unwarranted. Under such a provision, land could not be taken for a public highway, as has been repeatedly held by the Supreme Court of this state, it is not due process of law. Much less ought it to be enacted that individuals may be deprived of God given powers, functions and rights in such manner.

Perhaps I ought also to call your attention to section 6 of this act. It is in this section provided that "persons who shall come within the provisions of this law as criminals, and not otherwise, shall be those who have been convicted of the crime of rape or of such succession of offenses against the criminal law as in the opinion of said board shall be deemed to be sufficient evidence of confirmed criminal tendency." Under this section and the other provisions of this act, it is in effect provided that this board may inflict an additional penalty for a crime long before committed and the legal penalty of which has been already paid, and perhaps upon a person who has been reformed by the payment of such penalty as the law presumes until further offense is committed. It seems hardly necessary to suggest that such a provision contravenes the Constitution.

But the climax of absurdity and inconsistency seems to have been reached in section 7 of this measure. Under the provisions of this section both lunatic and imbecile are permitted to do that which has never been permitted in any court of justice in this land, viz., by agreement imposed upon themselves such penalty as under this act may be imposed upon criminals after full hearing and the introduction of evidence. To say that such a provision is unwarranted and absurd is putting it mildly.

4. NEBRASKA.

Senate File No. 132. Thirty-third Session.

a. TEXT OF BILL.

A BILL

For an act to prevent the procreation of certain classes of criminals and feeble-minded and other defectives; to provide for the appointment of a board of examiners by the board of commissioners of public institutions, said board of examiners to consist of two physicians and to fix their compensation, powers and duties; to provide for the appointment of counsel for the person or persons to be operated upon; to provide for the keeping of a record of the proceedings for such board of examiners and for an appeal from the order of such board; and to declare illegal all operations to prevent procreation of the human species except as authorized by this act, unless the same shall be a medical necessity, and declaring such illegal operations a felony and fixing a penalty therefor.

Be it enacted by the people of the State of Nebraska:

SECTION 1. Immediately after this act has gone into effect the board of commissioners of state institutions shall appoint two physicians, each with at least ten years' experience in the actual practice of his profession; one for a term of two years and one for a term of four years, to be known as the board of examiners of criminals, feeble-minded and other defectives, which board is hereby created. The compensation of the members of such board shall be ten dollars per diem for each day actually engaged in the performance of the duties of the board, and the actual and necessary traveling expenses. Whenever the term of a member of the board is about to expire said board of commissioners shall appoint a physician for the ensuing term. Any vacancies occurring in said board shall be filled by appointment by said board of commissioners for the unexpired term. All appointments so made shall be of physicians with at least ten years' experience, as hereinbefore provided.

SEC. 2. It shall be the duty of the said board to examine into the mental and physical condition and record and family history of the feeble-minded, epileptic, criminal, and other defective inmates confined in the several state hospitals for the insane, state prisons, reformatories and charitable and penal institutions, and those for the care of defectives in the state, and if, in the judgment of said board, procreation by any such person would produce children with an inhertied tendency to crime, insanity, feeble-mindedness, idiocy, or imbecility, and there is no probability that the condition of any such person so examined will improve to such an extent as to render procreation by any such person advisable, or if the physical or mental condition of any such person will be substantially improved thereby, then said board shall appoint one of its members to perform such operation for the prevention of procreation as shall be decided by said board to be most effective.

The criminals who shall come within the operation of this law shall be those who have been convicted of the crime of rape or of such succession of offenses against the criminal law as in the opinion of the board shall be deemed to be sufficient evidence of confirmed criminal tendencies.

SEC. 3. The board of examiners shall apply to the District Court or any judge thereof at chambers in the county in which said person or persons to be examined is confined, for the appointment of counsel to represent such person or persons. Said counsel shall act at the hearing before the board of examiners and at any subsequent proceeding therein, and no order made by said board shall become effective until five days after it shall have been filed with the clerk of the District Court of said county, and a copy shall have been served upon the counsel appointed to represent the person examined and proof of service of said copy shall have been filed with the clerk of said court. All orders made under the provisions of this act shall be subject to review by the District Court or any judge thereof at chambers of the county in which the original examination took place, and said court or judge may upon the filing of such appeal grant a stay which shall be effective until such appeal shall have been decided. The judge of the court appointing any counsel under this act may fix the compensation to be paid him. No physician performing an operation under the provisions of this act shall be held to account therefor. The record taken upon the examination of every such inmate signed by the said board of examiners shall be preserved by the institution where said inmate is confined and one year after the performance of the operation the superintendent or other administrative officer of the institution wherein such inmate is confined shall report to the board of examiners the condition of the inmate and the effect of such operation upon such inmate, and a copy of the report shall be filed with the record of the examination.

SEC. 4. Except as authorized by this act, every person who shall perform, encourage, assist in, or otherwise permit the performance of the operation for the purpose of destroying the power to procreate the human species or any person who shall knowingly permit such operation to be performed upon such person unless the same shall be a medical necessity, shall be guilty of a felony.

SEC. 5. Any person found guilty under the terms of this act shall be confined in the penitentiary not less than one year nor more than five years, and shall, moreover, be liable to the suit of the party injured.

b. VETO MESSAGE.

To Honorable S. R. McKelvie, Lieutenant Governor and President of the Senate:

I herewith return, without my approval, Senate File No. 132, an act entitled:

An act to prevent the procreation of certain classes of criminals and feeble-minded and other defectives; to provide for the appointment of a board of examiners by the board of commissioners of public institutions, said board of examiners to consist of two physicians and to fix their compensation, powers and duties; to provide for the appointment of counsel for the person or persons to be operated upon; to provide for the keeping of a record of the proceedings of such board of examiners and for an appeal from the order of such board; and to declare illegal all operations to prevent procreation of the human species except as authorized by this act unless the same shall be a medical necessity, and declaring such illegal operations a felony, and fixing a penalty therefor.

This act is so far reaching in its consequences and so intimately related to the social life of mankind, that legislative action should not be taken thoughtlessly or hurriedly. This proposed legislation is new and practically untried; at best it is only an experiment and it seems more in keeping with the pagan age than with the teachings of Christianity. Man is more than an animal.

There is no urgent demand for the passage of this kind of legislation. Mutilating the human body, either as a punishment for crime or as a preventive thereof, is drastic in the extreme and there is grave doubt in my mind if it does not violate Section 9, Article I, of the Bill of Rights, which prohibits cruel and unusual punishment. I believe serious objections may be made to it because of its violation of other provisions of the Bill of Rights, and the act itself appears out of harmony with Section 11, Article III, of the Constitution, in that it contains more than one subject.

There is no valid reason why this should be made to apply to wards of the state. These wards are under the care and control of superintendents appointed by the state, the different sexes are segregated and the danger sought to be obviated by this act, is already well guarded against.

While I am heartily in favor of the provisions of section 4 of this act and would be pleased to sign a law making it a felony for any person to perform any operation for the purpose of destroying the power to procreate the human species and making it a felony for any person to permit such an operation to be performed, still the other provisions referred to above are such that I must in conscience withhold my approval.

Respectfully submitted,

JOHN H. MOREHEAD,
Governor.

Executive Office, Lincoln, Nebraska, April 14, 1913.

C. PROPOSED STERILIZATION LAW REVOKED BY REFERENDUM.

1. *History of Proposed Sterilization Law and Referendum Petition of Oregon.*

The bill was introduced on January 15, 1913, by Representative L. G. Lewelling, of Albany, Oregon. It passed the Senate by a vote of 16 ayes to 11 noes; the House by 49 ayes to 8 noes. It was approved on February 18th by Governor Oswald West. It was to have appeared on the Oregon Statutes as Chapter 63, General Laws of Oregon, 1913 and was designed to take effect on June 3rd, 1913, but the referendum was on May 31st, 1913, legally invoked for November 4th, 1913. This held the law in abeyance pending the decision of the people. In Oregon it requires the petition of 5% (in this case 6,312) of the legal voters in order to invoke the referendum; 8,275 signers were actually secured. Such a measure is upheld if it receives the indorsement in referendum of a "majority of the votes cast thereon." The vote on November 4th, 1913, was—Yes, 41,767; no, 53,319. The total Oregon vote for Governor in 1910 was 117,690; for President in 1912 was 137,040. The vote was therefore apparently representative of the entire electorate.

The history of the sterilization legislation in this state is quite remarkable. A law was vetoed by Governor Chamberlain in 1909; in

1913 a new law was passed and approved by Governor West, but was revoked by referendum before it went into effect. It is interesting to learn that not only was the referendum against the statute led by a woman, but that a woman physician, Dr. Owens-Adair, of Warrenton, Oregon, was the leader in the original movement for legalized eugenical sterilization, and was the author of the bill vetoed by Governor Chamberlain. So far as the committee is aware, Oregon is the only state having an organized opposition to sterilization.

The 1913 proposed law was vigorously opposed by the Anti-Sterilization League, of which Mrs. Lora C. Little is vice-president. Through the agency of this league the referendum petition was circulated, and the requisite number of signers were secured.

In their petition they state:

REFERENDUM PETITION.

This is to refer to the people of the state for their approval or rejection House bill No. 69, passed by the Twenty-seventh Legislative Assembly of the State of Oregon, providing for sterilization of criminals, etc.

OBJECTIONS TO THE ACT.

1. The act is loosely drawn.
2. The operation is not specified, but may be whatever the State Board of Health decides upon. Cutting off an arm or leg, or trepanning the skull, would satisfy the requirements of the law.
3. Sterilization is not specified, but if intended, there are several operations possible. Some of these would not in least alter the criminal tendencies of rapists. This is the case with the operation now employed in Indiana, and might be here under this law.
4. The sterilizing operation applied to women may be a serious one endangering life.
5. Cutting of the generative organs directly affects the brain and lessens the probability of the cure of the insane. It also reduces the mental power of the feeble-minded, whom the state is now seeking to raise in power by training and education.
6. The claim that such a law is necessary to protect the future of the race is unfounded and wholly disproved by the history of penal colonies. Virginia and Australia are examples. Both these communities today rank high in morals and vitality, though many of their early settlers were deported criminals. Australia had 100,000 of these as the foundation of this great commonwealth.

ANTI-STERILIZATION LEAGUE.

Room 705 Swetland Building, Portland. Phone Main 4095.

These objections present a curious combination of truth and ignorance. Specifically, objections one, two and three appear sound;

number four is unduly emphasized; number five is false, and number six is biased, for it denies the element of heredity in human affairs and displays great ignorance of the facts of history.

Concerning their campaign letter, Miss Little says:

> Of the printed circulars we distributed less than thirty thousand. We carried on no campaign of public speaking; the election therefore may be said to have represented the spontaneous thought of the people practically uninfluenced by special advocates.
>
> On several occasions the secretary of the State Board of Health publicly declared his abhorrence of the law, maintaining that it would increase vice and crime and lead to further spread of venereal disease. I surmise that he did not relish his own position as the official on whom the execution of the law depended, and perhaps feared for his personal safety should he be forced to carry it into effect.

The agitation will at least be educational, for the principle has ardent supporters as well as valiant enemies in Oregon. If the revoking of this proposed law results in the agitation and enactment of a more carefully drawn law based upon purely eugenical motives, it will prove to have been a good thing.

On August 13, 1913, Dr. R. E. Lee Steimer, Superintendent of the Oregon State Hospital, wrote:

> At Oregon State Hospital several men have been castrated for sexual perversion—consent of patient and relatives in writing; also a number of ovariotomies, with consent of patient and nearest relatives, for flagrant masturbation; also a considerable number of tubes ligated and cut, with consent in writing. (Exact number not obtainable.)

Concerning the law just revoked, Dr. Steimer said:

> The present law is inadequate because it applies mostly to cases that would remain in confinement anyway. It is most needed for those who leave the institution.

2. *Text of the Revoked Oregon Statute.*

AN ACT

Entitled an Act to protect the public peace, health and safety from habitual criminals, moral degenerates and sexual perverts; to require the Superintendent of the Oregon State Insane Asylum, the Eastern Oregon State Hospital, the State Institution for Feeble-Minded, and the Oregon State Penitentiary to report quarterly the names, records, condition and character of all inmates of their respective institutions who are habitual criminals,

moral degenerates, or sexual perverts; to authorize the State Board of Health to investigate, or cause to be investigated, all such cases so reported to it; to authorize the State Board of Health, in its discretion, to direct the superintendents of the said institutions to perform, or cause to be performed, such surgical operations as may be for the best interests of the public peace, health and safety.

Be it enacted by the people of the State of Oregon:

SECTION 1. It is hereby declared that habitual criminals, moral degenerates and sexual perverts are menaces to the public peace, health and safety. Habitual criminals are those who have been three or more times convicted of a felony in the courts of any state and sentenced to serve in the penitentiary therefor. Moral degenerates and sexual perverts are those who are addicted to the practice of sodomy or the crime against nature, or to other gross, bestial, and perverted sexual habits and practices prohibited by statute. Any person convicted of rape when the offense is committed on a female over the age of consent as fixed by Lord's Oregon Laws, or on a female under the age of fourteen years, with or without consent, or on a female between fourteen years and the age of consent, where rape is committed as defined by Lord's Oregon Laws for rape over the age of consent, shall be deemed to be a moral degenerate under the terms and provisions of this act; provided, however, that in any case where the conviction of rape is secured by circumstantial evidence only, other than the evidence of the prosecutrix, this law shall not apply.

SEC. 2. It shall be, and is hereby declared the duty of the Superintendent of the Oregon State Insane Asylum, the Superintendent of the Eastern Oregon State Insane Asylum, the Superintendent of the State Institution for Feeble-Minded, and the Superintendent of the Oregon State Penitentiary, to report on the first day of each quarter to the State Board of Health the names, record, character and condition of any and all inmates of their respective institutions who may be habitual criminals, moral degenerates or sexual perverts.

SEC. 3. Immediately upon its receipt of the reports provided for in section 2, the State Board of Health shall investigate, or cause to be investigated, each case so reported to it. Such investigation shall be conducted in a careful and thorough manner and in accordance with the recognized rules of medical science. A full and complete report of such investigation shall be prepared and preserved in the records of the said board, and a copy thereof shall be furnished to the Superintendent of the institution in which the inmate is confined. If the said investigation shall disclose that the inmate, so reported upon, is a habitual criminal, or is a moral degenerate, or a sexual pervert, the said board shall so certify in an order to the superintendent of the institution in which the inmate is confined, directing the said superintendent to perform, or cause to be performed, such surgical operation upon the said inmate as, in the opinion of the said State Board of Health, may be necessary for the protection of the peace, health and safety of the State. Any such inmate desiring to appeal from the decision of the said Board, or in case the person is under guardianship or disability, then the guardian of said person may take an appeal to the Circuit Court of the county in which the institution, in which the person is confined, is located. A notice of appeal shall be all that is nessary to make the appeal. The board shall certify to the said Circuit Court the report of the investigations hereinbefore described.

The trial on such appeal shall be a trial *de nove* at law as provided by the statutes of this state for the trial of actions at law. If the Court or jury shall find that the person accused is a habitual criminal, moral degenerate or sexual pervert, as hereinbefore defined, said Court shall enter a judgment ordering that the findings of the said Board shall be carried out as hereinbefore provided.

SEC. 4. Upon receipt of the order from the State Board of Health, provided for in section 3, the superintendent of the institution to which it is directed shall, and it is hereby made his lawful duty, to perform, or cause to be performed, such surgical operation as may be specified in the order of the State Board of Health. All such surgical operations shall be performed with a due regard for the physical, mental and moral betterment of the inmate and for the protection of the peace, health and safety of the public.

SEC. 5. The provisions of this act shall apply to both male and female inmates of any of the institutions designated herein.

CHAPTER IV.

BILLS INTRODUCED BUT NOT PASSED.

1. GENERAL STATEMENT.

In order to show the trend of legislative effort in the field of eugenical sterilization, the accompanying table, analyzing bills which have been introduced and are either defeated or still pending in the various legislatures, is presented. There may have been, and doubtless were, other bills of similar nature introduced, but the committee, after diligent inquiry in all of the states, is unable to find definite records or copies of such.

It is believed by the committee that by the comparison of bills defeated, bills still pending, bills which became laws, bills which were vetoed and the model statute recommended in Chapter IX. of report, the persons having in charge the movement for enacting eugenical sterilization laws in the different states will find valuable data for their guidance.

2. TABULAR ANALYSIS OF BILLS INTRODUCED BUT NOT PASSED.

CHAPTER V.

LITIGATION AND LEGAL OPINION.

The recent American sterilization laws present new and heretofore untried agencies for social betterment. A wide public sentiment demanding legislative action has never existed. Neither has there been much pressure exerted upon the nominal executive agents

of the laws that were finally placed upon the statute books. Nor have the law officers been anxious to undertake the defense of these laws, the constitutionality of which is questioned.

The American people must determine this principle: Is eugenical sterilization a police measure, which would consequently permit the execution of a sterilization statute by a non-judicial commission, or is it an encroachment upon personal liberty to such a degree as would necessitate in each involuntary case an impartial hearing before a judicial body and the resting of the burden of the proof of social and racial menace with the state? If the former position prevails, then most of the existing statutes will probably be found constitutional; if the latter, then all except the Kansas and possibly the New Jersey, New York and Michigan statutes would probably be found unconstitutional. A constitutional statute based upon eugenical motives can certainly be drawn up in consonance with either view. It remains mainly to hasten the establishment by the courts either of the principle of the *adequacy of police regulation,* or of the *necessity of due process of law* as the basic principle for legalized eugenical sterilization.

Decisions on the constitutionality of a statute which is midway between these two positions, such as the law of New Jersey; on a purely police regulation statute, such as that of Wisconsin, and on the Kansas statute, which demands due process of law—all of them eugenical rather than punitive statutes—are therefore needed in order to define the legal status of legalized sterilization according to existing formulae. Of the twelve statutes authorizing sterilization for one or another purpose of social betterment, only one, namely, the punitive statute of Washington, has thus far (December 1, 1913) been tested in the highest court of the state.

A final decision is about to be had on the New Jersey law; and it is understood that the Wisconsin authorities will hasten a test case in that state.

Secondary in social, and probably in legal import, as well, is the questions of "class legislation" in limiting the application of the sterilization laws to the inmates of institutions. A final decision on any of the existing statutes would determine this question. It is not believed by the committee that in the final determination these laws will be found contrary to that provision of the Fourteenth Amendment to the Federal Constitution which compels the states to

extend to all of its citizens "the equal protection of the laws," notwithstanding such a determination of the Supreme Court of New Jersey.

1. WASHINGTON.

a. Decision of Supreme Court.

On September 3, 1912, the Supreme Court of the State of Washington rendered a decision sustaining the statute. The Attorney-General, Hon. W. V. Tanner, has supplied the committee with a report *(No. 70 Wash. 65; 126 Pacific Reporter, 75) of the decision, which is as follows:

THE STATE OF WASHINGTON, Respondent, *v.* PETER FEILEN, Appellant.

Rape—Evidence—Sufficiency.
Same—Evidence—Corroboration.
Criminal Law—Appeal—Review—Verdict—Rape—Sentence and Punishment.

Appeal from a judgment of the Superior Court for King County, John F. Main, Judge, entered September 30, 1911, upon a trial and conviction of rape. Affirmed.

Sidney J. Williams and *William R. Bell* for appellant.

John F. Murphy, Hugh M. Caldwell and *H. B. Butler* for the respondent.

The defendant was convicted of the crime of statutory rape, committed upon the person of a female child under the age of ten years, and was sentenced to imprisonment for life in the state penitentiary. The final judgment and sentence from which he has appealed further ordered, adjudged and decreed that:

An operation to be performed upon said Peter Feilen for the prevention of procreation, and the warden of the penitentiary of the state of Washington is hereby directed to have this order carried into effect at the said penitentiary by some qualified and capable surgeon by the operation known as vasectomy, said operation to be carefully and scientifically performed.

By his first assignment appellant contends that the trial judge erred in submitting the case to the jury, for the reasons (1) that no degree of penetration was shown, and (2) that the testimony of his victim, the prosecuting witness, was not corroborated by such other evidence as tended to convict him of the crime charged. We find no merit in these contentions. The evidence will not be discussed or stated in this opinion, as no good purpose could be thereby served. We are convinced that, under the rule announced in *State v. Kincaid,* 27 Wash. Dec. 114, 124 Pac. 684, the evidence was sufficient to comply with the requirements of Rem. & Bal. Code, sec. 2437. We are also satisfied that the evidence afforded that degree and character of corroboration required by sec. 2155, Rem. & Bal., and from all of the evidence we conclude that the only verdict that should have been returned was the one that the jury did return. The case was for the jury, and their verdict will not be disturbed.

*This case was reported also in "The Journal of the American Institute of Criminal Law and Criminology," Vol. III, No. 5, Jan., 1913; in the September, 1913, issue of the same journal there appeared by Chas. A. Boston, Esq., of New York an arraignment of the existing laws on the ground of their infringement upon personal liberty without due process of law.

Appellant was prosecuted under Rem. & Bal. Code, sec. 2436, and the penalty of life imprisonment was properly imposed. Rem. & Bal. Code, sec. 2287, provides that:

Whenever any person shall be adjudged guilty of carnal abuse of a female person under the age of ten years, or of rape, or shall be adjudged to be an habitual criminal, the court may, in addition to such other punishment or confinement as may be imposed, direct an operation to be performed upon such person for the prevention of procreation.

It was under the authority of this section that the trial judge ordered the operation of vasectomy, and appellant, by his remaining assignments, contends that it is unconstitutional in that an operation for the prevention of procreation is a cruel punishment prohibited by art. 1, sec. 14, of the state constitution, which directs that "excessive bail shall not be required, excessive fines imposed, nor cruel punishment inflicted." As the statute does not prescribe any particular operation for the prevention of procreation, the trial judge ordered that the operation known as vasectomy be carefully and skillfully performed. The question then presented for our consideration is whether the operation of vasectomy, carefully and skillfully performed, must be judicially declared a cruel punishment forbidden by the constitution. No showing has been made to the effect that it will, in fact, subject appellant to any marked degree of physical torture, suffering or pain. That question was doubtless considered and passed upon by the legislature when it enacted the statute. Appellant further contends that the imposition of the alleged cruel punishment as a part of the sentence necessitates a reversal of the judgment. This would not be true, even though we were to hold the operation to be an infliction of cruel punishment, as the judgment of conviction would have to be affirmed, with directions to enforce the penalty of life imprisonment. When a sentence is legal in one part and illegal in another, it is not open to controversy that the illegal, if separable, may be disregarded and the legal enforced. *United States v. Pridgeon,* 153 U. S. 48; *State v. Williams,* 77 Mo. 310, 313.

The crime of which the appellant has been convicted is brutal, heinous and revolting, and one for which, if the legislature so determined, the death penalty might be inflicted without infringement of any constitutional inhibition. It is a crime for which, in some jurisdictions, the death penalty has been imposed. 33 Cyc. 1518. If for such a crime death would not be held a cruel punishment, then certainly any penalty less than death, devoid of physical torture, might also be inflicted. In the matter of penalties for criminal offenses the rule is that the discretion will not be disturbed by the courts except in extreme cases.

It would be an interference with matters left by the constitution to the legislative department of the government for us to undertake to weigh the propriety of this or that penalty fixed by the legislature for specific offenses. So long as they do not provide cruel and unusual punishments, such as disgraced the civilization of former ages, and make one shudder with horror to read them, as drawing, quartering, burning, etc., the constitution does not put any limit upon legislative discretion. *Whitten v. State,* 47 Ga. 297.

On the theory that modern scientific investigation shows that idiocy, insanity, imbecility and criminality are congenital and hereditary, the legislatures of California, Connecticut, Indiana, Iowa, New Jersey, and perhaps other states, in the exercise of the police power, have enacted laws providing for the sterilization of idiots, insane, imbeciles and habitual criminals. In the enforcement of these statutes vasectomy seems to be a common operation. Dr. Clark Bell, in an article on hereditary criminality and the asexualization of criminals, found at page 134, Vol. 27, Medico-Legal Journal, quotes with approval the following language from an article contributed to Pearson's Magazine for November, 1909, by Warren W. Foster, senior judge of the Court of General Sessions of the Peace of the County of New York:

Vasectomy is known to the medical profession as "an office operation" painlessly performed in a few minutes, under an anesthetic (cocaine) through a skin cut an inch long, and entailing no wound infection, no confinement to bed. "It is less serious than the extraction of a tooth," to quote from Dr. William D. Belfield of Chicago, one of the pioneers in the movement for the sterilization of criminals by vasectomy, an opinion that finds ample corroboration among practitioners. . . . There appears to be a wonderful unanimity of favoring the prevention of their future propagation. The Journal of the American Medical Association recommends it, as does the Chicago Physicians' Club, the Southern District Medical Society, and the Chicago Society of Social Hygiene. The Chicago Evening Post, speaking of the Indiana law, says that it is one of the most important reforms before the people; that "rarely has a big thing come with so little fanfare of trumpets." The Chicago Tribune says that "the sterilization of defectives and habitual criminals is a measure of socal economy. The sterilization of convicts by vasectomy was actually performed for the first time in this country, so far as is known, in October, 1899, by Dr. H. C. Sharp of Indianapolis, then physician to the Indiana State Reformatory at Jeffersonville, though the value of the operation for healing purposes had long been known. He continued to perform the operation with the consent of the convict (not by legislative authority) for some years. Influential physicians heard of his work, and were so favorably impressed with it that they endorsed the movement which resulted in the passage of the law upon the Indiana statute books. Dr. Sharp has this to say of this method of relief to society: "Vasectomy consists of ligating and resecting a small portion of the vas deferens. This operation is indeed very simple and easy to perform; I do it without administering an anaesthetic, either general or local. It requires about three minutes' time to perform the operation, and the subject returns to his work immediately, suffers no inconvenience, and is in no way impaired for his pursuit of life, liberty and happiness, but is effectively sterilized."

Must the operation of vasectomy, thus approved by eminent scientific and legal writers, be necessarily a cruel punishment under our constitutional restriction when applied to one guilty of the crime of which appellant has been convicted? Cruel punishments, in contemplation of such constitutional restriction, have been repeatedly discussed and defined, although we have not been cited to, nor have we been able to find, any case in which the operation of vasectomy has been discussed. In *State v. Woodward,* 68 W. Va. 66, 69 S. E. 385, a recent and well-considered case which may be consulted with much profit, Brannon, Justice, said:

The legislature is clothed with power well-nigh unlimited to define crimes and fix their punishments. So its enactments do not deprive of life, liberty or property without due process of law and the judgment of a man's peers its will is absolute. It can take life, it can take liberty, it can take property, for crime. "The legislatures of the different states have the inherent power to prohibit and punish any act as a crime, provided they do not violate the restrictions of the state and federal constitutions; and the courts cannot look further into the propriety of a penal statute to ascertain whether the legislature had the power to enact it." 12 Cyc. 136. "The power of the legislature to impose fines and penalties for a violation of its statutory requirements is coeval with government." *Mo. P. R. Co. v. Humes,* 115 U. S. 512. The legislature is ordinarily the judge of the expediency of creating new crimes and of prescribing penalties, whether light or severe. *Commonwealth v. Murphy,* 165 Mass. 66; *Southern Express Co. v. Commonwealth,* 92 Va. 66. For such a fundamental proposition I need cite no further authority. . . . What is meant by the provision against cruel and unusual punishment? It is hard to say definitely. Here is something prohibited, and in order to say what this is we must revert to the past to ascertain what is the evil to be remedied.

Within the pale of due process the legislature has power to define crimes and fix punishments, great though they may be, limited only by the provision that they shall not be cruel or disproportionate to the character of the offense. Going back to ascertain what was intended by this constitutional provision, the history of the law tells us of the terrible punishment visited by the ancient law upon convict criminals. In our days of advanced Christianity and civilization this review is most interesting, yet shocking and heartrendering.

The learned jurist then proceeds with the narration of the cruel punishments mentioned in 4 Blaskstone, at pages 92, 327, and 377, and after citing and discussing the English Bill of Rights; *Whitten v. State,* 47 Ga. 301; *Aldridge Case,* 2 Va. Cases, 447; *Wyatt's Case,* 6 Rand 694; *In re Kemmler,* 136 U. S. 436, 446; *Wilkerson v. Utah,* 99 U. S. 130, 135; Cooley, Const. Lim. (4th ed.), 408; Wharton, Crim. Law (7th ed.), sec. 3405; *Hobbs v. State,* 133 Ind. 404, 32 N. E. 1019, 18 L. R. A. 774; *State v. Williams,* 77 Mo. 310; *Weems v. United States,* 217 U. S. 349; *O'Neil v. Vermont,* 144 U. S. 323, and other cases, says:

In short, the text writers and cases say that the clause is aimed at those ancient punishments, those horrible, inhuman, barbarous inflictions.

In re O'Shea, 11 Cal. App. 568, 105 Pac. 777, the California Court of Appeals for the first district said:

Cruel and unusual punishments are punishments of a barbarous character and unknown to the common law. The word, when it first found place in the Bill of Rights, meant not a fine or imprisonment, or both, but such punishment as that inflicted by the whipping post, the pillory, burning at the stake, breaking on the wheel, and the like; quartering the culprit, cutting off his nose, ears or limbs, or strangling him to death. It was such severe, cruel, and unusual punishments as disgraced the civilization of former ages, and made one shudder with horror to read of them. Cooley on Constitutional Limitations (7th ed.), p. 471 *et seq.; State v. McCauley,* 15 Cal. 429; *Whitten v. State,* 133 Ind. 404, 32 N. E. 1019; *State v. Williams,* 77 mo. 310. The legislature is ordinarily the judge of the expediency of creating new crimes and prescribing the punishment, whether light or severe. *Commonwealth v. Murphy,* 165 Mass. 66, 42 N. E. 504, 52 Am. St. Rep. 496, 30 L. R. A. 734; *Southern Express Co. v. Com.,* 92 Va. 59, 22, S. E. 809, 41 L. R. A. 436.

Guided by the rule that, in the matter of penalties for criminal offenses, the courts will not disturb the discretion of the legislature save in extreme cases, we cannot hold that vasectomy is such a cruel punishment as cannot be inflicted upon appellant for the horrible and brutal crime of which he has been convicted.

The judgment is affirmed.

PARKER, CHADWICK, and GOSE, J. J., concur.

b. Editorial Comment by "New York Times."

In commenting upon this decision editorially, the New York Times for October 12, 1912, says:

"CRUEL AND UNUSUAL."

The law for the sterilization of criminals in the State of Washington has been adjudged by its Supreme Court as not inflicting a "cruel" punishment forbidden by the constitution. The Federal Constitution and the constitutions of most of the states prohibit punishments that are both "cruel and unusual." The New York statute passed at the last session subjects "feeble-minded, epileptic, criminal and other defective inmates confined in the several state hospitals for the insane, state prisons, reformatories and charitable and penal institutions," who are also of confirmed criminal tendencies, to a pain-

less operation that cuts them off from posterity. Their diseased and criminal traits will die with them. It is designed, however, as a measure of punishment. In a sense, it is unusual. Is it likewise excessively severe?

The New York Law Journal, discussing the Washington case in its issue of October 8th, refers to decisions stating that the constitutional prohibition was aimed at punishments of shocking brutality, such as burning at the stake, breaking on the wheel, drawing and quartering, and so on, which "disgraced the civilization of former ages." The Law Journal quotes also the recent decision of the Federal Supreme Court in *Weems v. United States*, which says:

The eighth amendment is progressive and does not prohibit merely the cruel and unusual punishments known in 1689 and 1787, but may acquire wider meaning as public opinion becomes enlightened by humane justice.

But the decision regards the eighth amendment as primarily "a precept of justice that punishment of crime should be graduated and proportioned to the offense." In the Weems case a penalty imposed under a Philippine statute was declared cruel and unusual, not because it was unique, but because very severe. Conversely, the Law Journal thinks, the clause in state constitutions may be interpreted as not fixed, but progressive, "so as to sanction forms of punishment, not wantonly or extremely cruel, and shown to be appropriate to an offense by new conditions developed under social progress."

The Washington statute is purely punitive, and while the decisions of the Washington courts are very pertinent to the whole question of constitutionality, a law based primarily and directly upon eugenical motives, and in which sterilization is considered either (a) clearly as a police measure or (b) as necessitating in each case "due process of law" has not yet been tested in the courts.

2. NEW JERSEY.

The New Jersey Act is not a punitive one, but it considers eugenical sterilization in part as subject to police regulation and in part as of sufficient importance to require in certain contingencies certain legal procedure—although perhaps not "due process of law." This statute was on November 18, 1913, held by the Supreme Court of New Jersey to be contrary to the Constitution of the United States, but the highest court of the state of New Jersey is the Court of Errors and Appeals, to which an appeal will be made, and since the question involves the Federal Constitution, a further appeal may (and we trust will) be made to the Supreme Court of the United States. The history of the New Jersey litigation is as follows:

a. Brief by Assistant Attorney-General.

The executive commission provided a test case in their selection for sterilization of one Alice Smith, a ward of the State and an inmate of the New Jersey State Village for Epileptics at Skillman. For

this case the papers were filed with the County Clerk on November 12, 1912. The writ of *certiorari* was served on the Attorney-General December 26, 1912. Hon. Nelson B. Gaskill, Assistant Attorney-General, on behalf of the defendants submitted to the Supreme Court of New Jersey a brief, from which we quote in part:

THE FACTS EXHIBITED BY THE STATE OF THE CASE.

The prosecutor, Alice Smith, is an inmate of the New Jersey State Village for Epileptics, above the age of twenty-one years, and was committed to the said institution by an order made by the judge of the Court of Common Pleas of the County of Essex on August 19, 1902, as an indigent epileptic. (*State of the Case, pages* 5, 6, 7, 8 and 9.)

In addition to the stipulation of facts, and the appearance of the record formally adjudging the prosecutor to be an epileptic, the certificate of original records, the history and condition of the prosecutor, are exhibited in pages of the *State of the Case*, 9 to 45. It is impossible to consider this evidence without being led inevitably to the result that the prosecutor is, in fact, an epileptic. In fact, this is not denied.

The hearing and the order of the board following the hearing (page 44) indicate that the statutory procedure was properly followed.

The act in question was passed by the legislature of nineteen hundred and eleven, and became a law, with the approval of the Executive. The legislative policy follows established belief upon the subject treated, as is evidenced by the laws of other states.

Indiana, Laws 1907, C-215;
Connecticut, Public Acts 1909, C-209;
California Statutes 1909, C-720;
Iowa, Laws 1911, C-129.

The underlying principle upon which such legislation is based, and its justification, must be found in the police power of the states. It is to be observed that nothing in the act now under consideration indicates that its operation is conceived or intended to be within the part of the police power of the state which deals with crime by administering punishment. The act belongs rather to the administrative, regulative phase of the police power, intended to promote the general welfare, not only of the presently existing group of citizens, but their successors throughout the continuation of the state as such. The tests to be applied to this statute, therefore, are not those by which a punitive statute is measured.

Since the limits of the police power have never been encompassed within a single definition, but must be judged inevitably by the circumstances of each individual case as presented, so this case stands without absolute precedent.

So far as information runs in the several states in which similar legislation has been passed, either the operation of the act has received some assent from the individuals affected, or has been put into operation without objection or subsequent determination by the court in a test case. For there is no decision which counsel has been able to find dealing directly with the questions now presented.

The statute of the State of Washington, which was under review in *State v. Feilen,* 126 *Pac. Rep.* 75, is a statute somewhat similar, but in which the operations of the statute were clearly and specially directed at punishment for crime, and, as has been stated above, no such purpose can be found in the statute now under review. The question, therefore, of double punishment, or cruel or unusual punishment, is not involved.

The Legislature has declared the scope of the statute as applied to certain described classes. It seems to be settled that the declaration of the Legislature prohibiting certain acts of restraint of previously existing liberties, as harmful to the public welfare, disposes of the subject-matter, so far as the Court is concerned, with the problem of whether the acts referred to are or are not harmful, and, therefore, to be prohibited. This is the burden of the decision in the case of the *State Board of Health v. Diamond Mills Paper Company,* reported in 63 Eq. at p. 11. The only question, therefore, before the Court can be, not whether the Legislature is justified in the conclusion which it has reached, but whether, having reached that conclusion, it has, in enforcing it, or in the declaration of the statute, encroached upon any of the rights or privileges of the individual guaranteed by the organic law beyond the power of legislative invasion.

It must be conceded that the growing tendency of judicial decision is toward a liberal interpretation of the guarantees of personal rights, as contained in the State and Federal Constitutions, subjecting the rights of the individual to restriction in favor of the general welfare.

As Mr. Justice Holmes said, in rendering the opinion in *Noble State Bank v. Haskell,* 219 U. S., p. 104:

Many laws which it would be vain to ask the court to overthrow could be shown, easily enough, to transgress a scholastic interpretation of one or another of the great guarantees in the Bill of Rights. They more or less limit the liberty of the individual or they diminish property to a certain extent. We have few scientifically certain criteria of legislation, and as it often is difficult to mark the line where what is called the police power of the states is limited by the Constitution of the United States, judges should be slow to read into the latter a *nolumus mutare* as against the lawmaking power.

The novelty of the statutory proceeding, and the broad scope of the statutory forecast, must, therefore, be dismissed, and search made, since there is no absolute precedent for decisions which will, at least, act as lines of direction.

It is well settled that the right of marriage is subject to limitations by the state. It is true that the state has never regarded the marriage ceremony as a legal, as distinguished from a religious, ceremony, as is the case under the civil law, but the regulation and restriction of the right of marriage has long since been established. These restrictions include protection to the state against the marriage of classes of persons distinctly upon the ground that the birth of undesirable citizens will be detrimental to the state's welfare.

Lonas v. State, 3 Heisk. (Tenn. 287);

State v. Gibson, 36 Ind. 389;

Gould v. Gould, 78 Conn. 242.

The statutes of this state regulating marriage, including prohibition against the marriage of epileptics, have not received consideration at the hands of the Court, seeming to have been accepted without protest. It is true that this limitation upon the right of marriage does not include, or has not yet included, infliction of physical injury upon individuals for the protection of society. Yet there are not wanting decisions which indicate the right of the state to compel physical injury upon unwilling individuals for the general protection.

The discovery of vaccination, and its successful use, led to the adoption of compulsory vaccination laws. These were resisted, as infringing the rights of personal liberty, due process of law, etc., and were sustained as a valid exercise of the police power.

Morris v. Columbus, 102 Ga. 792; 30 S. E. Rep. 850;

Jacobson v. Mass., 197 U. S. 11.

It results, therefore, since the state may protect itself against the birth of undesirable citizens by placing restrictions upon the right of marriage, and

may inflict physical injury on individuals for the protection of society, that these two rights may properly be joined to accomplish the end which the Legislature has declared to be necessary and proper.

The severity of the operations required by this statute, and their possible effect, are dealt with elsewhere in the brief submitted.

So, too, the right of the state to segregate certain classes of individuals, not as criminals, but in defense of the right of the state to care for the helpless, and to protect society, has been established.

In re Dowdle, 169 Mass. 387-389;
Chavannes v. Priestly, 80 Iowa 316-320;
Shenango v. Wayne, 34 Pa. St. 14-186.

Thus it appears that the right of restraint may be joined to the infliction of physical injury for the protection of society.

It may be well to consider here the force and effect to be given to paragraph six of the act under review, which is as follows:

6. If any provisions of this act shall be questioned in any court, and the provisions of this act with reference to any class of persons enumerated therein shall be held to be unconstitutional and void, such determination shall not be deemed to invalidate the entire act, but only such provisions thereof with reference to the class in question as are specially under review and particularly passed upon by the decision of the court.

This clearly indicates that the Legislature, in dealing with this subject, was not unaware of the difficulty which might lie in the path of accomplishment of its purpose, and called upon the Court thereby to consider the act as applicable in the legislative mind, not only to all of the classes involved, but to any of them to which the provisions of the statute might be held to be constitutionally applicable.

It appears that the act includes the feeble-minded, epileptic and other defective inmates confined in the several reformatory, charitable and penal institutions in the counties and the state, and the criminals defined by paragraph two. The application of the act, therefore, is to certain classes generally referred to as defectives, and to others generally classified as criminals. There may be, possibly, more ground for objection to the reason for the application of the provisions of the act to criminal classes than to defective classes because of the difficulty of properly determining the propriety of the procedure of the act in criminal cases. To this it may be suggested that the Legislature has disposed, by its declaration, of the question of propriety when it has included certain criminals within its declaration of those to whom the act shall, in the protection of the public welfare, be applied, so that this question as to whether the act ought to include any criminal classes is not within the jurisdiction of the Court, unless the criminal classes so included may be shown to have some additional guarantee beyond that of the other classes involved, which is, of course, impossible.

Or it may be suggested that this phase of the act is not brought before the Court by the present proceedings, which deal with one of the so-called defective classes, and that, therefore, the possible application of the act to the criminal classes is one which the Court is not called upon to decide, and, further, it appears that if the Court should be of the opinion that, as applied to criminal classes, the act is unconstitutional, this provision may be exscinded, under the legislative sanction, and the remainder of the act stand intact.

If, however, the Court shall be of the opinion that the provisions of paragraph two indicate an intention on the part of the Legislature to make this act applicable to the criminal classes therein defined, as a punishment for crime, rather than to designate the classes of individuals to whom the act is to be applicable, then it may be suggested that this phase of the act falls within the authority of *State v. Feilen,* above referred to.

The act of the state of Washington, there under review, dealt with habitual criminals.

The reasons filed are somewhat indefinite, but they do not indicate any objection to the form of the statute. In so far as the five distinct reasons have not been dealt with in the general argument preceding, it seems to be sufficient to say that reason number two is answered by paragraph three of the statute, provided it be sustained, and the proceedings seem to be, in all respects, in conformance with the statute, and reason number five failing to disclose wherein the proceedings are alleged to be defective, no specific answer can be made thereto.

This brief was accompanied and supplemented by a carefully prepared brief by the Honorable Elmore T. Elver, of the Wisconsin bar. The limitations of space prevent our reproducing this able paper here.

b. Decision of Supreme Court.

On November 18, 1913, the Supreme Court of New Jersey held the sterilization statute of that state to be unconstitutional in so far as it relates to epileptics. Section 6 of the statute provides that in case of determining the act unconstitutional in reference to one class of persons enumerated therein "such determination shall not be deemed to invalidate the entire act."

The committee is indebted to Hon. Joseph P. Byers, Commissioner of Charities and Corrections of New Jersey, for the report of this decision, which follows:

NEW JERSEY SUPREME COURT. JUNE TERM, 1913.

Alice Smith, Prosecutrix, vs. Board of Examiners of Feeble-Minded (Including Idiots, Imbeciles and Morons), Epileptics, Criminals and other Defectives,

Defendant.

Submitted July 3, 1913. Decided November 18, 1913.

1. The artificial regulation of the welfare of society by means of surgical operations for the prevention of procreation, being based upon the suppression of the personal liberty of individuals, must be accomplished, if at all, by a statute that does not deny to the persons thus injuriously affected the equal protection of the laws guaranteed by the fourteenth amendment to the Constitution of the United States.

2. The Board of Examiners created by "An act to authorize and provide for the sterilization of feeble-minded (including idiots, imbeciles and morons), epileptics, rapists, certain criminals and other defectives" (P. L., 1911, p. 353), ordered that the operation of salpingectomy be performed upon one Alice Smith, an epileptic inmate of a State charitable institution, as the most effective operation for the prevention of procreation.

Held, that the statute in question was based upon a classification that bore no reasonable relation to the object of such police regulation, and hence denied to the individuals of the class so selected the equal protection of the laws guaranteed by the fourteenth amendment to the Constitution of the United States.

On *Certiorari.*

The order brought up by this writ of *certiorari* is as follows:

The Board of Examiners of Feeble-Minded (including idiots, imbeciles and morons), epileptics, criminals and other defectives, together with David F. Weeks, the chief physician of the New Jersey State Village for Epileptics, having on the thirty-first day of May, 1912, regularly convened at the Administration Building at the New Jersey State Village for Epileptics (according to the provisions of chapter 190, page 333, of the laws of 1911, Statutes of the State of New Jersey), and at that time, in the presence of Azariah M. Beekman, counsel regularly appointed to represent Alice Smith, an inmate of said Village, committed thereto on August 19, 1902, by Alfred F. Skinner, Judge of the Court of Common Pleas of Essex County, application for the appointment of said counsel having been made to and the appointment having been made, to and previous to the holding of said hearing, by the Judge of the Court of Common Pleas of the County of Somerset, in which county the institution in which said Alice Smith is an inmate is located, having examined into the mental and physical condition of the said Alice Smith, do find and declare her to be an epileptic person within the meaning of the said act; and the said Board, together with the chief physician of said institution, having unanimously found in the case of said Alice Smith that procreation by her is inadvisable, and that there is no probability that the condition of said Alice Smith, so examined, will improve to such an extent as to render procreation by said Alice Smith advisable.

It is, therefore, on this, the thirty-first day of May, nineteen hundred and twelve, Ordered, that the operation of salpingectomy, as the most effective operation for the prevention of procreation, be performed upon the said Alice Smith in accordance with the motion at said hearing unanimously adopted.

The pertinent parts of the statute under which this order was made are as follows.

(For the full text of this statute see chapter II of this study.)

Before Justices Garrison, Trenchard, and Minturn.

For the prosecutrix, Azariah M. Beekman.

For the defendant, Nelson B. Gaskill, Assistant Attorney-General.

The following opinion of the Court was delivered by Justice Garrison:

The question propounded is whether or not the statute under which the order now before us was made is a valid exercise of the police power. The statute, it will be observed, applies also to criminals, in which aspect it does not now concern us since the prosecutrix is an epileptic, an unfortunate person, but not a criminal.

The order is made by the Board of Examiners, provided by the act of April 21, 1911, (P. L., p. 253). Briefly stated, the order after reciting that Alice Smith is an epileptic inmate of a state charitable institution, that procreation by her is inadvisable, and that there is no probability that her condition will improve to such an extent as to render procreation by her advisable, orders that the operation of salpingectomy be performed upon the said Alice Smith.

Salpingectomy is the incision or excision of the Fallopian tube, *i. e.,* either cutting it off or cutting it out. The Fallopian tube is an essential part of the female reproductive system and consists of a narrow conduit some four inches in length that extends on each side of a woman's body from the base

of the womb to the ovary upon that side. These three organs, *i. e.*, the ovary, the Fallopian tube and the uterus, are all concerned in normal child-bearing, the relation between them being that the unfecundated ovum, which is periodically produced in the ovary, passes down through the Fallopian tube into the body of the uterus, where, if fecundation by the male seed takes place, or has taken place, the embryo is formed and developed into the foetus or unborn child.

The statute is broad enough to authorize an operation for the removal of any one of these three organs essential to procreation. These organs are in pairs on either side of the body, excepting the uterus, which is a single organ lying deep in the pelvis back of the bladder. The operation of salpingectomy, therefore, to be effective must be performed on both sides of the body, and hence is in effect two operations, both requiring deep-seated surgery under profound and prolonged anaesthesia, and hence involving all of the dangers to life incident thereto, whether arising from the anaesthetic, from surgical shock or from the inflammation or infection incident to surgical interference with the peritoneal cavity. Those ordinary incidents and dangers of such an operation are not lessened where the operation is not sought by the patient, but must be performed upon her by force, at least to the extent of the production of such anaesthesia as shall completely destroy all liberty of will or action. The order is addressed to no one and is silent as to the person by whom this operation is to be performed, and the statute likewise is silent upon this subject, excepting that when an order is made, "thereupon it shall be and may be lawful for any surgeon qualified under the laws of this state, under the direction of the chief physician of said institution, to perform such operation."

The prosecutrix falls within the classification of the statute in that she is an inmate of the State Village for Epileptics, a state charitable institution, "the objects of which," as stated in the act creating it, are "to secure the humane, curative, scientific and economical care and treatment of epilepsy." (4 Comp. Stat., p. 4961.)

The prosecutrix has been an inmate of this charity since 1902, and for the five years last past she has had no attack of the disease; from this statement of the facts it is clear that the order with which we have to deal threatens possibly the life, and certainly the liberty, of the prosecutrix in a manner forbidden by both the state and Federal Constitution, unless such order is a valid exercise of the police power. The question thus presented is therefore not one of those constitutional questions that are primarily addressed to the legislature, but purely a legal question as to the due exercise of the police power, which is always a matter for determination by the courts.

This power, stated as broadly as the argument in support of the order requires, is the exercise by the legislature of a state of its inherent sovereignty to enact and enforce whatever regulations are in its judgment demanded for the welfare of society at large in order to secure or to guard its order, safety, health or morals. The general limitation of such power to which the prosecutrix must appeal is that under our system of government the artificial enactment of the public welfare by the forceable suppression of the constitutional rights of the individual is inadmissible.

Somewhere between these two fundamental propositions the exercise of the police power in the present case must fall and its assignment to the former rather than to the latter involves consequences of the greatest magnitude. For while the case in hand raises the very important and novel question whether it is one of the attributes of government to essay the theoretical improvement of society by destroying the function of procreation in certain of its members who are not malefactors against the laws, it is evident that the decision of that question carries with it certain logical consequences having far-reaching results. For the feeble-minded and epileptics are not the only persons in the community whose elimination as undesirable citizens would, or

might in the judgment of the legislature be a distinct benefit to society. If the enforced sterility of this class be a legitimate exercise of governmental power, a wide field of legislative activity and duty is thrown open to which it would be difficult to assign a legal limit.

If in the present case we decide that such a power exists in the case of epileptics, the doctrine we shall have enunciated cannot stop there. For epilepsy is not the only disease by which the welfare of society at large is injuriously affected; indeed, not being communicable by contagion or otherwise, it lacks some of the gravest dangers that attend upon such diseases as pulmonary consumption or communicable syphilis. So that it would seem to be a logical necessity that, if the legislature may under the police power theoretically benefit the next generation by the sterilization of the epileptics of this, it both may and should pursue the like course with respect to the other diseases mentioned with the additional gain to society thereby arising from the protection of the present generation from contagion or contamination. Even when these and many other diseases that might be named have been included, the limits of logical necessity have by no means been reached.

There are other things besides physical or mental diseases that may render persons undesirable citizens or might do so in the opinion of a majority of a prevailing legislature. Racial differences, for instance, might afford a basis for such an opinion in communities where that question is unfortunately a permanent and paramount issue. Even beyond all such considerations it might be logically consistent to bring the philosophic theory of Malthus to bear upon the police power to the end that the tendency of population to outgrow its means of subsistence should be counteracted by surgical interference of the sort we are now considering.

Evidently the large and underlying question is how far is government constitutionally justified in the theoretical betterment of society by means of the surgical sterilization of certain of its unoffending but undesirable members. If some, but by no means all, of these illustrations are fanciful, they still serve their purpose of indicating why we place the decision of the present case upon a ground that has no such logical results or untoward consequences.

Such a ground is presented by the classification upon which the present statute is based, which is of such a nature that the persons included within it are not afforded the equal protection of the laws under the Fourteenth Amendment of the Constitution of the United States, which provides that "no state shall deny to any person within its jurisdiction the equal protection of the laws." Under this provision it has been uniformly held that a state statute that bears upon a class of persons selected by it must not only bear alike upon all the individuals of such class, but that the class as a whole must bear some reasonable relation to the legislation thus solely affecting the individuals that compose it.

"It is apparent," said Mr. Justice Brewer in Gulf, Colorado & R. R. Co. v. Ellis (165 U. S., p. 150), after a review of many cases, "that the mere fact of classification is not sufficient to relieve a statute from the reach of the equality clause of the Fourteenth Amendment, and that in all cases it must appear, not only that a classification has been made, but also that it is one based upon some reasonable ground, some difference which bears a just and proper relation to the attempted classification and is not a mere arbitarary selection."

This summarizes a mass of cases that might be cited.

Turning our attention now to the classification on which the present statute is based and laying aside criminals and persons confined in penal institutions with which we have no present concern, it will be seen that as to epileptics, with which alone we have to do, the force of the statute falls wholly upon such epileptics as are "inmates confined in the several charitable institutions in the counties and state." It must be apparent that the class thus selected is singularly narrow when the broad purpose of the statute and the

avowed object sought to be accomplished by it are considered. The objection, however, is not that the class is small as compared with the magnitude of the purpose in view, which is nothing less than the artificial improvement of society at large, but that it is singularly inept for the accomplishment of that purpose in this respect, namely, that if such object requires the sterilization of the class so selected, then *a fortiorari* does it require sterilization of the vastly greater class who are not protected from procreation by their confinement in state or county institutions.

The broad class to which the legislative remedy is normally applicable is that of epileptics, *i. e.*, all epileptics. Now, epilepsy, if not, as some authorities contend, mainly a disease of the well-to-do and overfed, is, at least, one that affects all ranks of society, the rich as well as the poor. If it be conceded, for the sake of argument, that the legislature may select one of these broadly defined classes, *i. e.*, the poor, and may legislate solely with reference to this class, it is evident that by the further subclassification of the poor into those who are and those who are not inmates in public charitable institutions a principle of selection is adopted that bears no reasonable relation to the proposed scheme for the artificial betterment of society. For not only will society at large be just as injuriously affected by the procreation of epileptics who are not confined in such institutions as it will be by the procreation of those who are so confined, but the former vastly outnumber the latter, and are in the nature of things vastly more exposed to the temptation and opportunity of procreation, which, indeed, in the cases of those confined in a presumably well-conducted public institution is reduced practically to nil.

The particular vice, therefore, of the present classification is not so much that it creates a subclassification based upon no reasonable basis, as that having thereby arbitrarily created two classes it applies the statutory remedy to that one of those classes to which it has the least, and in no event a sole, application, and to which, indeed, upon the presumption of the proper management of our public institutions it has no application at all. When we consider that such statutory scheme necessarily involves a suppression of personal liberty and a possible menace to the life of the individual who must submit to it, it is not asking too much that an artificial regulation of society that involves these constitutional rights of some of its members shall be accomplished, if at all, by a statute that does not deny to the persons injuriously affected the equal procreation of the laws guaranteed by the Federal Constitution.

The suggestion that the classification might be sufficient if the scheme of the statute were to turn the sterilized inmates of such public institutes loose upon the community, and thereby to effect a saving of expense to the public, is not deserving of serious consideration.

The palpable inhumanity and immorality of such a scheme forbids us to impute it to an enlightened legislature that evidently enacted the present statute for a worthy social end, upon the merits of which our present decision upon strictly legal lines is in no sense to be regarded as a reflection.

The conclusion we have reached is that, without regard to the power of the state to subject its citizens to surgical operations that shall render procreation by them impossible, the present statute is invalid in that it denies to the prosecutrix of this writ the equal protection of the laws to which, under the Constitution of the United States, she is entitled.

The order brought up by this writ is set aside.

c. Comment.

On November 24, 1913, Hon. Nelson B. Gaskill, the Assistant Attorney-General, wrote to the Committee:

The New Jersey Sterilization Act was held unconstitutional with reference to that feature alone which was presented to the court, namely, its application to the class of epileptics as included within the operation of the act. I am instructed by the Board of Examiners in charge of the enforcement of this act to take an appeal from the decision of the Supreme Court to the Court of Errors and Appeals, which, of course, will be done.

The Board of Examiners expect a final decision supporting the constitutionality of the act. While the New Jersey statute as it stands provides for inadequate and clumsy executive machinery and has other defects which the committee describes in Chapters VI. and VII., still it embodies the principle of eugenical sterilization, and a final decision on its constitutionality—regardless of whether it be supported or rejected—would therefore be a great asset to practical eugenics. If an unfavorable decision is rendered by the Court of Errors and Appeals an appeal should be made to the Supreme Court of the United States. Such an appeal could probably be made on account of the conflict which the New Jersey court contends exists between the New Jersey sterilization law and the Fourteenth Amendment to the Constitution of the United States. Among other things Section One of the Fourteenth Amendment provides that "No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty or property without due process of law, nor deny to any person within its jurisdiction *the equal protection of the laws.*" The Fifth Amendment to the Constitution of the United States imposes practically the same limitations upon the Federal government. An early decision by the highest court in the land on the constitutionality of the act would be of immense value to the several states in their efforts to find a just and efficient legal formula for eugenical sterilization. If the New Jersey law should be held by the United States Supreme Court to be contrary to the Fourteenth Amendment, then all sterilization laws would have to provide for "due process of law" such as the Kansas law seeks, and which the model statute proposed by the committee in Chapter VIII. of these studies so fully and explicitly provides. And if the Supreme Court should decide that "the-equal-protection-of-the-laws" rather than the "due-process-of-law" provision of this amendment is violated by these laws limiting sterilization to the inmates of institutions, then the model law should be immediately amended so as to apply to the entire

population. In the interest of conservative eugenical progress it is hoped that such extension will not be immediately necessary.

If the New Jersey statute should be held to be constitutional, then a statute limited in application to the inmates of institutions would not constitute class legislation; and in so far as due process of law is concerned, a nonjudicial body, such as most of the statutes provide for, would constitute a sufficient executive which could select persons for sterilization in accordance with the state law, either with or without "due process of law" for the final order, and the matter of the extension of the law to the entire population would be one of detail. The principle of eugenical (but not of punitive) sterilization is in keeping with social justice and racial welfare, and the legal formula authorizing its use could be adjusted to meet almost any conceivable decision that the Supreme Court of the United States might render.

It may be useful to make analogy between the involuntary commitment of anti-social persons to institutions, and the selections of cacogenic persons for involuntary sterilization. Such commitments to institutions can be ordered only by due process of law, but there is no lessening of the efficiency of our institutions for such classes on that account, and it is probable that in the end we shall find that a particular case of sterilization may be ordered only as a result of due process of law—that it may not be ordered by a non-judicial inquisition—and nothing would be lost thereby, but, on the other hand, sterilization in certain contingencies could become a fixed policy and much would be gained by the additional safeguards.

It seems proper at this time to call attention to one serious scientific error made by Judge Garrison in rendering the decision in the New Jersey case. He does not distinguish clearly between innate hereditary qualities (see Chapter I, Study No. 1, of this series), and things which appear to be such but are not. He confuses the methods of hereditary transmission of epilepsy and of syphilis; his sole distinction being that the former is not "communicable by contagion," and because of this fact he minimizes the social danger of epilepsy. The facts are as follows: Since natural inheritance plays but a small part in the etiology of syphilis, this disease presents a medical problem to be conquered by medical means; in the etiology of epilepsy on the other hand, natural inheritance plays an all-important role, and the problem of its conquest is a biological one to be

solved by biological means. A child may be born with syphilis, which it acquired by contamination from its parents before it was born, yet syphilis does not imply defective germ-plasm. Strictly speaking, the child does not inherit syphilis simply because it was born with it; birth is only a change of environment. The possibilities of heredity in a biological sense are ended when the two parental gametes meet in fertilization. It is true that the germ of syphilis may be waiting for the forming embryo, but the disease is a matter of environment, not of heredity. Preventive medicine will doubtless conquer it some day. Epilepsy, on the other hand, is inherent in the ancestral line of descent *i. e.* in the germ-plasm (see First Studies in the Heredity of Epilepsy, Davenport and Weeks, Bulletin No. 4 Eugenics Record Office). Medical science may palliate this disease, but it cannot conquer it, because its extirpation is not a medical problem. If conquered at all it can be conquered only by cutting off the lines of descent—the germ-plasm—that carry it; and this can be done only by the same methods employed by the breeder of domestic plants and animals, namely, by denying parenthood to individuals of undesirable hereditary potentialities. This distinction should be brought to the attention of the Court of Errors and Appeals in case of an appeal.

Eugenical sterilization does not set up class distinction in a legal sense of the term, because it applies to all persons presenting a given set of conditions, namely all persons duly committed to the state's charge as socially inadequate who are proven to be potential parents of defectives. But it does make such distinction in a biological sense, setting apart the breeding stock of anti-social individuals in very much the same manner as our present laws, which in neither principle nor practice are deemed discriminatory, set apart persons who conduct themselves in a manner inimical to social interests; the difference between the two latter processes being that the former is for the future and lasting welfare of society, while the latter is merely an immediate palliative.

3. CALIFORNIA.

In California the Attorney-General, Hon. U. S. Webb, by Hon. R. C. Van Fleet, Deputy, at the request of Dr. F. W. Hatch, General Superintendent of the California State Hospitals, rendered an

opinion in which he affirms the constitutionality of the sterilization statute of that state. The opinion is dated March 2, 1910, and in part is as follows:

I may as well state at the outset that, in my opinion, the question of the castration of rapists and confirmed criminals presents some grave constitutional aspects, and I fear that in a statute of the nature of the one before us the constitutional guarantees are not entirely preserved.

There are no recorded cases arising under a statute similar to this one, as Indiana and California are the pioneer states in this legislation. A consideration of the Indiana statute, however, came before the annual meeting of the National Prison Association, held in Chicago in September, 1907, and very full argument was indulged therein. The Attorney-General of Indiana, Mr. Bingham, doubted the soundness of the principle of emasculating a perfectly sane person, unless it is imposed as a part of a penalty; in other words, that this operation should be a matter of punishment adjudged by the court. This view seemed to be concurred in by other attorneys there present. It was suggested that such a punishment would be unsafe in the hands of the court and the modern jury, and should only be applied after the investigation of experts. There is no doubt of the soundness of this idea, but we are restricted in this country by our system of government, which excludes many of the acts of paternalism not having the sanction of the law. What I have said, however, applies to the operation known as castration. But there is another operation, for the prevention of procreation, upon the inmates of institutions intrusted with the care of confirmed criminals, idiots, rapists and imbeciles, and to the extent that the operation is part of a necessary medical treatment the act would be undoubtedly valid. This is also the opinion of the attorneys who were present at the meeting of the National Prison Association, where this question was discussed. (See Transactions National Prison Association, 1907, pp. 177-194.)

In treating upon this subject it must be borne in mind that medical opinion is now convinced that degeneracy is a defect, and that a defect differs from a disease in that it cannot be cured. Degeneracy is the term applied when the nervous or mental construction of the individual is in a state of unstable equilibrium. Degeneracy means that certain areas of brain cells or nerve centers of the individual are more highly or imperfectly developed than the other brain cells, and this causes an unstable state of the nerve system, which may manifest itself in insanity, criminality, idiocy, sexual perversion, or inebriety. Most of the insane, epileptic, imbecile, idiotic, sexual perverts, many of the confirmed inebriates, prostitutes, tramps, and criminals, as well as habitual paupers, found in our country poor-asylums, also many of the children in our orphan homes, belong to the class known as degenerates. For this condition to go on unchecked eventually means a weakening of our nation. It is, as Herbert Spencer once said, "To be a good animal is the first requisite to success in life, and to be a nation of good animals is the first condition to national prosperity."

Idiots, imbeciles and degenerate criminals are prolific and their defects are transmissible. Each person is a unit of the nation, and the nation is strong and pure and sane, or weak and corrupt and insane, in the proportion that the mentally and physically healthy exceed the diseased. This grave danger has consumed the thought of great and good men in recent years. Much restrictive legislation has been suggested and many states have passed marriage laws for the purpose of regulating, as far as possible, the propagation of degenerates through the marriage relation. Minnesota has a law providing that no woman under the age of forty-five years, or a man of any age, except he marry a woman over forty-five years of age, either of whom is epileptic, imbecile, feeble-minded or afflicted with insanity, shall intermarry or marry

any other person within the bounds of the state. Michigan, Delaware, Connecticut, New Jersey and North Dakota have all passed laws for the purpose of preventing marriage among defectives; but, unfortunately, matrimony is not always necessary to propagation, and the tendency of these several different laws is to restrict procreation only among the more moral and intelligent class, while the most undesirable class goes on reproducing its kind, the only difference being that illegitimacy is added to degeneracy.

Castration is another means that has been suggested for the purpose of preventing the propagation of the unfit. But there is still too much conflict among experts as to the result of this drastic measure, and observation of its data has not been sufficiently thorough to warrant any definite deductions. Castration sometimes causes death, and it can readily be seen that one subjected to it would in all probability become morose and downcast on account of the deformity. Besides, the organs involved have a double function, that of an internal as well as an external secretion, and the organism cannot maintain a normal condition when robbed of this internal secretion.

The same results, however, in the prevention of degeneracy can be obtained by a method of treatment less objectionable and less severe. This operation is known as vasectomy, which consists of ligating and resecting a small portion of the vas deferens. Of this operation Dr. H. C. Sharp, physician in the Indiana Reformatory, who was one of the first to apply it, as early as the year 1899, says:

This operation is, indeed, very simple and easy to perform. I do it without administering an anesthetic, either general or local. It requires about three minutes' time to perform the operation, and the subject returns to his work immediately, suffers no inconvenience, and is in no way impaired for his pursuit of life, liberty and happiness, but is effectively sterilized. I have been doing this operation for nine full years. I have two hundred and thirty-six cases that have afforded splendid opportunity for post-operative observation, and I have never seen any unfavorable symptoms. There is no atrophy to the testicles, there is no cystic degenerations, there is no disturbed mental or nervous condition following, but, on the contrary, the patient becomes of a more sunny disposition, brighter of intellect, ceases excessive masturbation, and advises his fellows to submit to the operation for their own good. And here is where this method of preventing procreation is so infinitely superior to all others proposed—that it is endorsed by the subjected persons. All other methods proposed place restrictions, and, therefore, punishment upon the subject; this method absolutely does not. There is no expense to the state, no sorrow or shame to the friends of the individual, as there is bound to be in the carrying out of the segregation idea.

There is a law providing for the sterilization of defectives in effect in Indiana, and our law follows it very closely. Under the provisions of the law women may be subjected to sterilization methods as well as men, and the operation on women is almost as simple, for it consists of simply ligating the Fallopian tube.

If, under the constitution, the state may so far interfere with the right to contract as to prohibit the marriage of epileptics, it would seem that, considering this measure solely as a preventative and health measure, it would to no greater extent violate the federal constitution or the civil-rights bill. It may also be considered as an additional protection to the marriage relation, for intercourse under the sanction of the marriage relation is the only intercourse between the sexes recognized by the law, and if the state may absolutely prohibit such intercourse between epileptics in the marriage relation, it would seem that it would have the power for the protection of society to take these absolutely preventive measures, especially as their effects upon the subject are innocuous.

Marriage is undoubtedly the supreme product of human social evolution. Every advance made in the ethics of marriage has been at the expense of a

battle with natural law and animal impulse. The integrity and moral plane of the family are the keystone of our social fabric, but the struggle to maintain monogamy has been a fierce one, and is still going on beneath the surface.

It is on these broad grounds that the courts have upheld statutes preventing the marriage of defectives. I call your attention particularly to the case of *Gould vs. Gould,* 78 Conn. 242 (61 Atl. 604), wherein the court says:

Was the statute a valid act of legislation? It forbade the marriage of certain classes of persons under any circumstances. One of these only it is now necessary to consider—that of epileptics. The provisions of the act of 1895 were separable with respect to the different classes of persons with whom it deals, and, so far as this action is concerned, it is enough if it can be supported as to marriages contracted after its enactment by those in the condition of the defendant: Pub. Acts, 1895, chap. 325, p. 667. The constitution of this state (preamble and article 1, section 1) guarantees to its people equality under the law in the rights to "life, liberty, and the pursuit of happiness": *State vs. Conlon,* 65 Conn. 478, 489, 491; 31 L. R. A. 55; 48 Am. St. Rep. 227; 33 Atl. 519. One of these is the right to contract marriage, but it is a right that can only be exercised under such reasonable conditions as the legislature may see fit to impose. It is not possessed by those below a certain age. It is denied to those who stand within certain degrees of kinship. The mode of celebrating it is prescribed in strict and exclusive terms: Gen. Stat. 1902, sec. 4538. The universal prohibition in all civilized countries of marriage between near kindred proceeds in part from the established fact that the issue of such marriages are often, though by no means always, of an inferior type of physical or mental development. That epilepsy is a disease of a peculiarly serious and revolting character, tending to weaken mental force, and often descending from parent to child, or entailing upon the offspring of the sufferer some other grave form of nervous malady, is a matter of common knowledge, of which courts will take judicial notice: *State vs. Main,* 69 Conn. 123, 153; 36 L. R. A. 623; 61 Am. St. Rep. 30, 37; Atl. 80. One mode of guarding against the perpetuation of epilepsy obviously is to forbid sexual intercourse with those afflicted by it, and to preclude such opportunities for sexual intercourse as marriage furnishes. To impose such a restriction upon the right to contract marriage, if not intrinsically unreasonable, is no invasion of the equality of all men before the law, if it applies equally to all, under the same circumstances, who belong to a certain class of persons, which class can reasonably be regarded as one requiring special legislation either for their protection or for the protection from them of the community at large. It cannot be pronounced by the judiciary to be intrinsically unreasonable if it should be regarded as a determination by the general assembly that a law of this kind is necessary for the preservation of public health, and if there are substantial grounds for believing that such determination is supported by the facts upon which it is apparent that it was based: *Holden vs. Hardy,* 169 U. S. 366, 398; 42 L ed. 780, 793; 18 Sup. Ct. Rep. 383; *Bissell vs. Davison,* 65 Conn. 183, 192; 29 L. R. A. 251m; 32 Atl. 348. There can be no doubt as to the opinion of the general assembly, nor as to its resting on substantial foundations. The class of persons to whom the statute applies is not one arbitrarily formed to suit its purpose. It is certain and definite. It is a class capable of endangering the health of families and adding greatly to the sum of human suffering. Between the members of this class there is no discrimination, and the prohibitions of the statute cease to operate when, by the attainment of a certain age by one of those whom it affects, the occasion for the restriction is deemed to become less imperative. While Connecticut was the pioneer in this country with respect to legislation of this character, it no longer stands alone. Michigan, Minnesota, Kansas, and Ohio have, since 1895, acted in the same direction: 2 Howard, Matrimonial Institutions, 400, 479, 480; Ohio Sess. Laws 1904, p. 83. Laws of this kind may be regarded as an expression of the conviction of modern society that disease is largely prevent-

able by proper precautions, and that it is not unjust in certain cases to require the observation of these, even at the cost of narrowing what in former days was regarded as the proper domain of individual right. It follows that the statute in question was not invalid, as respects marriages contracted by epileptics, after it took effect.

If there is the power to thus guard against the perpetuation of epilepsy and preclude such opportunities for sexual intercourse as marriage furnishes, then, by the same course of reasoning, the state would have the power to preclude any opportunity for such intercourse in the manner herein prescribed, inasmuch as the measures provided for have no harmful results.

Considered, then, as a health measure, and as a rational and undoubted protection to society, without any elements of torture accompanying its execution, it appears to me that the sterilization of degenerates by the method which I have described would not violate our constitutional guarantee.

Common law must keep pace with scientific and social advances. We are living in a quick and active age of scientific progress and achievement that atrophies the power of surprise. The individual finds himself in the midst of a bewildering panorama of uses and activities, and he needs a superb equipment to meet them. The age must furnish him with the equipment, mental and physical, as well as with the activities. The art of healing and preventive medicine, in particular, has achieved great triumphs in emancipating the race from the old terrors of virulent disease. This it has done by dealing with the science of causes, instead of results alone. It has now turned its penetrating light upon race degeneracy, with its train of accompanying evils, criminality, prostitution, pauperism, inebriety, and insanity. Modern thought is being swayed by these immortal pioneers of science, who have stood for the liberation of humanity from ignorance, dogma, and superstition. The dealing with crime from the standpoint of its causes, heredity and degeneracy, congenital and acquired, is a modern science. Lombroso's great work appeared in 1876. Already an enlightened criminology has had its results in our modern reformatories; growing sentiment in favor of classification of criminals; the establishment of juvenile courts, and the separation of youthful and adult criminals; the parole system, and the increasing favor with which the indeterminate sentence is regarded. These are but rays of light which filter down into our slough of ignorance. We can not but be profoundly convinced that the day of fruition in the treatment of the criminal and insane is at hand. Science has taken its masterful grasp of this subject, and the precious results will as surely follow as the discovery of anaesthesia, or any of the boons which have attended the triumphant march of scientific thought, and the measures here proposed will undoubtedly become universal in the treatment of defectives. Shall it be said that the supreme flower of Anglo-Saxon civilization, the common law, does not keep pace with the beneficent ideas of the age? Is it not adequate to the very-varying needs of our social development? Mr. Justice Matthews says, in *Hurtado vs. California,* that this flexibility and capacity for growth and adaptation is the peculiar boast and excellence of the common law. The Constitution of the United States was ordained, it is true, by the descendants of England, who inherited the traditions of English law and history; but it was made for an undefined and expanding future and for a people gathered, and to be gathered, from many nations and many tongues. There is nothing in Magna Charta, rightly construed, as a broad charter of right and law, which ought to exclude the best ideas of all systems and of every age; and as it was the characteristic principle of the common law to draw its inspiration from every foundation of justice, we are not to assume that its sources of supply have been exhausted. On the contrary, we should expect that the new and various experiences of our own situation and system will mold and shape it into new and not less useful forms (*Hurtado vs. California,* 110 U. S., 530).

Whether considered as an additional punishment, or as an invasion of the right to procreate, involved in the right to life, liberty and happiness, the measures proposed are no more radical than the measures for the suppression of crime now in vogue, which do not show any particular sensitiveness on the part of society as to the criminal's rights. The law does not hesitate to hang the murderer, despite the fact that, upon the average, the murderer is of all criminals the least dangerous to society. Liberty is the right of man, which can not be gainsaid, yet the law does not hesitate to imprison for life on occasion. Life imprisonment not only takes away liberty, but practically infringes upon the right to live, the right to marry, and the right to procreate. In imprisonment for life, or capital punishment, it would be somewhat difficult to see any conservation of the rights of the criminal's posterity from the sentimentalist's standpoint.

Sterilization of criminals for the protection of the public against a degenerate posterity in no way compares in severity with capital punishment or imprisonment for life, for it does not interfere with either liberty or life.

As to the difficulty of determining whether a person is a congenital criminal or not before applying the measures proposed, a noted specialist has this to say:

It is not necessary to demonstrate a criminal anthropologic type in order to prove the value of measures tending to prevent the procreation of children by criminals. Whether there is a definite anthropologic type or not, the fact remains that a certain more or less definite proportion of our population is composed of criminals by instinct and by profession—these individuals are degenerates, and the degeneracy that is responsible for their own criminality may indubitably be transmitted to their descendants. Any measure that prevents this class of individuals from having descendants is necessarily preventive of crime. To demand that all criminals should be cast in a definite mold, the finished product of which he who runs may read, is begging the question. It is not necessary to determine whether "any given convict is a member of an hereditary criminal group" in order to show that the prevention of his procreating will be preventive of crime.

It is obvious that the application of sterilization to the crime class would require some discrimination and should be made under strictly scientific supervision.

So far as the typic or habitual criminal is concerned the method should be universally applied. In other cases careful study and selection should be made, society in all cases be given the benefit of the doubt. There is this to be said in favor of sterilization, viz., if performed under strict scientific supervisions, as a method of preventing crime only, and not for the purpose of punishment—it being directed against the criminal and not against the crime that he has committed—comparatively few mistakes would be likely to be made, and those mistakes by no means so serious in results as many that are made by courts of law in the correction and punishment of the innocent.

As restricted to the sterilization of the inmates of prisons and hospitals by the method of vasectomy, I am of the opinion that there are no legal inhibitions upon this enlightened piece of legislation which is an awakening note to a new era and a great advance toward that day when man's inhumanity to man will have acquired a meaning beyond mere frothy sentiment.

As regards the castration of confirmed criminals and rapists, and those guilty of sexual crimes, I am of the opinion that there are grave constitutional questions at stake, and that such measures should not be taken until an adjudication is had in a court of law.

(Signed) U. S. WEBB, Attorney-General.
By R. C. VAN FLEET, Deputy.

4. CONNECTICUT.

a. Opinion of the Attorney-General.

In Connecticut the Attorney-General, Hon. John H. Light, at the request of the Directors of the Connecticut State Prison, rendered an opinion on the sterilization statute of that state. The opinion is dated at Hartford, December 9, 1912, and with the exception of the repetition of the statute and the introductory paragraph, is as follows:

THE ACT AUTHORIZING OPERATIONS FOR THE PREVENTION OF PROCREATION IS CONSTITUTIONAL.

This statute is clearly a police regulation, therefore its constitutionality must depend upon whether the regulations prescribed are kept within the proper bounds of the police power of the state.

Woodruff v. N. Y. & N. Eng. R. R. Co., 59 Conn. 85.

It has been universally conceded that under the broad and comprehensive rule of public policy states may do anything necessary to protect the people which is not in conflict with the constitution.

It has been repeatedly held that the state may regulate, and even prohibit, marriage under certain conditions, and the legislature may authorize municipal corporations or boards of education to exclude unvaccinated children from public schools, even in the absence of smallpox.

Gould v. Gould, 78 Conn. 242.

State v. Conlen, 65 Conn. 489.

Our constitution does not impose any specific limitations on the exercise of legislative power, except some slight restrictions in one or two amendments, but our Bill of Rights constitutes the fundamental condition on which all powers of government may be exercised. It guarantees to the people equality under the law in their rights to "life, liberty, and the pursuit of happiness."

Preamble and Article First.

State v. Conlen, 65 Conn. 489.

Among these rights may be mentioned the right to contract marriage and the right to beget children, but these rights can only be exercised under such reasonable conditions as the legislature may see fit to impose.

The right to contract marriage is not possessed by those below a certain age, and it is frequently denied to those who stand within certain degrees of kinship. The law has fixed the mode of celebrating it in strict and exclusive terms.

A few years ago our legislature passed a law forbidding man or woman, either of whom is epileptic, imbecile or feeble-minded, to intermarry, or to live together as husband and wife, when the woman is under forty-five years of age, and made it a state prison offense to violate, or attempt to violate, any provision of the act. Our Supreme Court held this statute to be constitutional.

In speaking for the Court in *Gould v. Gould,* 78 Conn. 244, Mr. Justice Baldwin said:

The universal prohibition in all civilized countries of marriage between near kindred proceeds in part from the established fact that the issue of such marriages are often, though by no means always, of an inferior type of physical or mental development.

That epilepsy is a disease of a peculiarly serious and revolting character, tending to weaken mental force, and often descending from parent to child, or entailing upon the offspring of the sufferer some other grave form of nervous malady, is a matter of common knowledge, of which courts will take judicial notice. *State v. Main,* 69 Conn. 123, 135. One mode of guarding against the perpetuation of epilepsy obviously is to forbid sexual intercourse with those afflicted by it, and to preclude such opportunities for sexual intercourse as marriage furnished. To impose such a restriction upon the right to contract marriage, if not intrinsically unreasonable, is no invasion of the equality of all men before the law, if it applies equally to all under the same circumstances who belong to a certain class of persons, which class can reasonably be regarded as one requiring special legislation either for their protection or for the protection from them of the community at large. It cannot be pronounced by the judiciary to be intrinsically unreasonable if it should be regarded as a determination by the General Assembly that a law of this kind is necessary for the preservation of public health, and if there are substantial grounds for believing that such determination is supported by the facts upon which it is apparent that it was based. *Holden v. Hardy,* 169 U. S. 366, 398; *Bissell v. Davidson,* 65 Conn. 183, 192. There can be no doubt as to the opinion of the General Assembly, nor as to its resting on substantial foundations. The class of persons to whom the statute applies is not one arbitrarily formed to suit its purpose. It is certain and definite. It is a class capable of endangering the health of families and adding greatly to the sum of human suffering. Between the members of this class there is no discrimination, and the prohibitions of the statute cease to operate when, by the attainment of a certain age by one of those whom it affects, the occasion for the restriction is deemed to become less imperative.

While Connecticut was the pioneer in this country with respect to legislation of this character, it no longer stands alone. Michigan, Minnesota, Kansas and Ohio have, since 1895, acted in the same direction. 2 Howard on Matrimonal Institutions 400, 479, 480; Laws of Ohio, 1904, p. 83. Laws of this kind may be regarded as an expression of the conviction of modern society that disease is largely preventible by proper precautions, and that it is not unjust in certain cases to require the observation of these, even at the cost of narrowing what in former days was regarded as the proper domain of individual right.

The principles laid down by Mr. Justice Baldwin in said case apply with equal force to the statute under consideration.

Society owes itself the duty of preventing procreation by persons who would produce children with an inherited tendency to crime, insanity, feeble-mindedness, idiocy, or imbecility.

Dugdale's history of the Jukes shows where the single ancestor "Max" was the progenitor of more than 1200 social derelicts.

In view of such history the sterilization of criminals must stand within the police power of the state upon the same footing with the sterilization of idiots, feeble-minded, and imbeciles.

Such an operation should not be considered punishment any more than the imposition of vaccination is a punishment. In one case society seeks to prevent the spread of an infectious disease, and in the other the disastrous spread of crime, insanity, feeble-mindedness, idiocy, and imbecility.

In his work entitled "Mental Defectives" Dr. Barr says:

Let asexualization be once legalized, not as a penalty for crime, but a remedial measure preventing crime and tending to future comfort and happiness of the defective; let the practice once become common for young children immediately upon being adjudged by competent authority properly appointed, and the public mind will accept it as an effective means of race preservation. It would come to be regarded, just as quarantine, simply as protection against ill.

Dr. H. C. Sharp of the Indiana Reformatory, in his pamphlet on "The Sterilization of Degenerates," says:

Since October, 1899 I have been performing an operation known as vasectomy, which consists of ligating and resecting a small portion of the vas deferens. This operation is, indeed, very simple and easy to perform; I do it without administering an anaesthetic, either general or local. It requires about three minutes' time to perform the operation, and the subject returns to his work immediately, suffers no inconvenience, and is in no way impaired for his pursuit of life, liberty and happiness, but is effectively sterilized. I have been doing this operation for nine full years. I have two hundred and thirty-six cases that have afforded splendid opportunity for post-operative observation, and I have never seen any unfavorable symptom. . . . And here is where this method of preventing procreation is so infinitely superior to all others proposed—that it is endorsed by the subjected persons. All the other methods proposed place restriction, and, therefore, punishment upon the subject; this method absolutely does not.

It has been conclusively proven by the experience of the medical world that the operation of vasectomy and oophorectomy is comparatively painless, and, therefore, cannot be esteemed cruel, though it may be unusual, but everything new is unusual.

The constitution does not contemplate that the state should be restricted in the exercise of protective measures to the forms of evil that existed at the time the constitution was adopted.

In the case of *Weems vs. United States,* 217 U. S., page 373, Mr. Justice McKenna, in delivering the opinion of the court, said:

Legislation, both statutory and constitutional, is enacted, it is true, from an experience of evils, but its general language should not, therefore, be necessarily confined to the form that evil had theretofore taken. Time works changes, brings into existence new conditions and purposes. Therefore a principle, to be vital, must be capable of wider application than the mischief which gave it birth. This is peculiarly true of constitutions. They are not ephemeral enactments, designed to meet passing occasions. They are, to use the words of Chief Justice Marshall, "designed to approach immortality as nearly as human institutions can approach it." The future is their care, and provisions for events of good and bad tendencies of which no prophecy can be made. In the application of a constitution, therefore, our contemplation cannot be only of what has been, but of what may be. Under any other rule a constitution would indeed be as easy of application as it would be deficient in efficacy and power. Its general principles would have little value, and be converted by precedent into impotent and lifeless formulas. Rights declared in words might be lost in reality. And this has been recognized. The meaning and vitality of the constitution have developed against narrow and restrictive construction.

Modern scientific investigation has shown clearly that idiocy, insanity, imbecility, and criminality are hereditary and congenital, and, on the strength of this information, Indiana, California, Connecticut, New Jersey, Iowa, New York, Nevada, and Washington, in the exercise of the police power, have enacted laws providing for the sterilization of certain persons likely to produce children with an inherited tendency to crime, insanity, feeble-mindedness, idiocy or imbecility.

The State of Washington has a statute which reads as follows:

Whenever any person shall be adjudged guilty of carnal abuse of a female person under the age of ten years, or of rape, or shall be adjudged to be an habitual criminal, the court may, in addition to such other punishment or confinement as may be imposed, direct an operation to be performed upon such person for the prevention of procreation.

One Peter Feilen was convicted before the Superior Court, King County, in the State of Washington, of the crime of statutory rape, committed upon the person of a female child under the age of ten years, and was sentenced to im-

prisonment for life in the state penitentiary, and in addition to such punishment, acting under the authority given in said statute, the court further ordered an operation to be performed upon said Peter Feilen for the prevention of procreation, and the warden of the penitentiary of the State of Washington was directed to have the order carried into effect by some qualified and capable surgeon by the operation known as vasectomy.

The defendent appealed from the judgment to the Supreme Court of the state, and contended that the law is unconstitutional, in that an operation for the prevention of procreation is a cruel punishment, prohibited by Article I, Section 14, of the State Constitution, which directs that "excessive bail shall not be required, excessive fines imposed, nor cruel punishment inflicted." The court (State v. Feilen) rendered its decision September 3, 1912, holding the law to be constitutional, and that the operation of vasectomy is not cruel punishment. Among other things, the court said:

As the statute does not prescribe any particular operation for the prevention of procreation, the trial judge ordered that the operation known as vasectomy be carefully and skillfully performed. The question then presented for our consideration is whether the operation of vasectomy, carefully and skillfully performed, must be judicially declared a cruel punishment forbidden by the Constitution. No showing has been made to the effect that it will in fact subject appellant to any marked degree of physical torture, suffering or pain. That question was doubtless considered and passed upon by the legislature when it enacted the statute. . . .

The crime of which the appellant has been convicted is brutal, heinous, and revolting, and one for which, if the legislature so determined, the death penalty might be inflicted without infringement of any constitutional inhibition. It is a crime for which in some jurisdictions the death penalty has been imposed. 33 Cyc. 1518. If for such a crime death would not be held a cruel punishment, then certainly any penalty less than death, devoid of physical torture, might also be inflicted. In the matter of penalties for criminal offenses, the rule is that the discretion of the legislature will not be an interference with matters left by the constitution to the legislative department of the government for us to undertake to weigh the propriety of this or that penalty fixed by the legislature for specific offenses. So long as they do not provide cruel and unusual punishments, such as disgraced the civilization of former ages, and make one shudder with horror to read of them, as drawing, quartering, burning, etc., the constitution does not put any limit upon legislative discretion. Whitten v. State, 47 Ga. 297. . . .

In State v. Woodward, 68 V 66, 69, S. E. 385, 30 L. R. A. (N. S.) 1004, a recent and well considered case which may be consulted with much profit, Brannon, Justice, said: ". . . . The legislature is clothed with power well-nigh unlimited to define crimes and fix their punishment. So its enactments do not deprive life, liberty, or property without due process of law, and the judgment of a man's peers, its will is absolute. It can take life, it can take liberty, it can take property, for crime. The legislatures of the different states have the inherent power to prohibit and punish any act as a crime, provided they do not violate the restrictions of the State and Federal Constitutions; and the courts cannot look further into the propriety of a penal statute than to ascertain whether the legislature had the power to enact it." 12 Cyc. 136. "The power of the legislature is to impose fines and penalties for a violation of its statutory requirements is coeval with government." Mo. P. R. Co. v. Humes, 115 U. S. 512. (s Sup. Ct. 110, 29 L. Ed. 463). The legislature is ordinarily the judge of the expediency of creating new crimes, and of prescribing penalties, whether light or severe. Commonwealth v. Murphy, 165 Mass., 66 (42 N. E. 504 L. R. A. 734, 52 Am. St. Rep. 496); Southern Express Co. v. Commonwealth, 92 Va., 66 (22 S. E., 41 L. R. A., 436). For such a fundamental proposition I need cite no further authority. . . .

Guided by the rule that, in the matter of penalties for criminal offenses, the courts will not disturb the discretion of the legislature, save in extreme cases, we cannot hold that vasectomy is such a cruel punishment as cannot be inflicted upon appellant for the horrible and brutal crime of which he has been convicted.

The foregoing is the only case bearing upon any feature of a sterilization law, and that is confined to the constitutionality of the punishment provided.

The statutes of the states of Washington and Nevada both limit the operation to an habitual criminal, any person adjudged guilty of the carnal abuse of a female person under the age of ten years, or of rape, and contemplate the imposition of such operation as further punishment, while Indiana, California, Connecticut, New Jersey, Iowa, and New York have laws which provide for performing the operation upon all such persons confined in the state prison and other state institutions, who are likely to produce children with an inherited tenedncy to crime, insanity, feeble-mindedness. idiocy or imbecility.

The New Jersey and New York laws are expressly limited in their application to criminals as follows:

The criminals who shall come within the operation of this law shall be those who have been convicted of the crime of rape or of succession of offenses against the criminal law as in the opinion of this Board of Examiners shall be deemed to be sufficient evidence of confirmed criminal tendencies.

And each statute provides for the appointment of counsel to represent the person to be examined at the hearings of the board, and in any subsequent proceediugs, and permits an appeal from any order of the board to the Supreme Court, or any justice thereof, and the court may, on appeal, grant a stay, which shall be effective until such appeal shall have been decided.

The other state laws make no provision for the appointment of counsel or an appeal from any order of the board.

The laws of Connecticut, New York and Iowa prohibit the performance of the operation, except as authorized by the respective acts, unless the same shall be a medical necessity. Therefore the only persons eligible for the operation in those states are the persons confined in the institutions named.

This prohibition is based upon the police powers of the state, and the legislature doubtless justified it upon the theory that it would be dangerous to society to permit healthy men and women to cause themselves to be deprived of the natural power of procreation. I am of the opinion, however, that some board should have the authority to permit such operation to be performed upon any individual, whenever such individual is able to satisfy the board that his purpose is to prevent producing children with an inherited tendency to crime, insanity, disease, feeble-mindedness, idiocy, or imbecility. It is illogical to limit the application of the law to the inmates of prisons and asylums and to make it a penal offense to perform the operation on anyone else. The law should provide for a state board with power to examine individual applicants, as well as the inmates of state institutions, and order the operation performed in every case where the person examined would be likely to produce offspring with any of the above tendencies.

Many persons inherit a tendency to insanity or disease, who may desire to avoid transmitting such tendency to their children, and they should be permitted to obtain legal sanction for submitting to the operation of vasectomy.

Some features of our statute, in my judgment, are objectionable and should be changed, but I find nothing intrinsically unreasonable in the law. It applies equally to all of certain classes of persons, which persons may be regarded as requiring special legislation for the protection from them of the commuity at large. It may be taken as a determination by the general assembly that a law of this kind is necessary for the preservation of public health and morals, and no one at all familiar with the facts will question the essential justice of such determination. The classes of persons to which the statute applies are capable of endangering the health, morals and good character of our people and adding greatly to the sum of human suffering. There is no

discrimination among the members of such classes. The principles laid down in such cogent language by Chief Justice Baldwin, in the case of Gould v. Gould, *supra*, are capable of a wider application than the mischief which gave them birth; they may reach as far as the needs of society.

There are no individual rights under the constitution superior to the common welfare. The whole of society is greater than any of its parts. No man is permitted to claim the right to beget children with an inherited tendency to crime, insanity, feeble-mindedness, idiocy, or imbecility.

In determining the constitutionality of such a law there may be ground for some distinction between different classes of individuals embraced within its terms. No one will question that the sterilization of idiots and imbeciles may be regarded within the police power of the state, but some may doubt whether the sterilization of criminals can be supported on the same ground. I believe that the sterilization of such criminals as are included within the purview of our statute may be. The inmates of the institutions named in the act are brought by penal and police regulations into the custody and care of the state and constitute a special class. The state assumes under the law an obligation to this class and to the public which does not obtain in relation to any other class of our citizens, therefore the application of the sterilization law to this class alone is reasonable and it cannot be said to deprive such class of "equal protection of the law," vouchsafed by the Fourteenth Amendment of the Constitution of the United States.

For the foregoing reasons I am of the opinion that the statute in question is constitutional.

Respectfully submitted,
JNO. H. LIGHT,
Attorney-General.

b. Statement by Dean Rogers.

In a letter dated January 8, 1912, to Attorney-General Light, Dean Rogers of the Yale Law School says concerning this statute:

. . . At first blush I thought that the act was unconstitutional, but after a careful examination of the provisions of the act and numerous authorities, I came to the conclusion that the act is constitutional.

The Fourteenth Amendment of the Constitution of the United States gave me considerable pause. I considered very carefully whether the state through this law would "deprive any person of life, liberty or property without due process of law, or deny to any person within its jurisdiction the equal protection of the laws."

I understand the essential elements of "due process of law" are notice and opportunity to defend. But due process does not require any particular form of proceedings to be observed, but only that the same shall be regular proceedings, in which notice is given of the claim asserted and opportunity afforded to defend against it.

Smith v. State Board of Medical Examiners, 117 N. W. 1116.

It appears to me that no member of the class enumerated in the statute can claim the right to produce children with an inherited tendency to crime, insanity, feeble-mindedness, idiocy, or imbecility; therefore, the statute is a reasonable police regulation for the protection of the health, morals and safety of the people, and the discrimination rests upon a proper basis. Within constitutional limits the legislature is the sole judge as to what laws should be enacted for the protection and welfare of the people, and as to when and how the police power of the state is to be exercised.

State v. Drayton, 117 N. W.; N. J. Ch, 1908.

The public policy of the state is the creature of the legislature and the courts have nothing to do with forming it and only recognize it like any other matter of public law.

The "equal protection of the law" means equal security or burden under the law to all similarly situated, and the law must bear alike on all individuals, classes, and districts which are similarly situated, the real purpose of the amendment being to prevent arbitrary and capricious legislation; therefore, to constitute equal protection of the law it is only necessary that there be equality among those similarly situated.

I think the inmates of the state prison and the insane hospitals at Middletown and Norwich are essentially in a class by themselves, and the state necessarily assumes a different relationship to them than to any other classification of a part of our people.

I believe, however, that the law is defective and should be amended. In my opinion the power to examine and order an operation of vasectomy or oophorectomy should belong to the State Board of Health and the directors of the State Prison, and the Superintendents of the State Hospitals at Middletown and Norwich might be authorized to have any inmate examined with a view of having such operation performed, and in such case the inmate to be examined should be priviliged to have an attorney appointed to appear for him at the expense of the state.

And, furthermore, any individual should have the right to make application to the Board to be examined, and in case sufficient reason be shown, to be authorized to have said operation performed on himself or herself. . . .

5. OPINION ON THE GENERAL PRINCIPLE.

a. Statement by Louis Marshall.

The following opinion is rendered by Louis Marshall, who, in a letter to Hon. Warren W. Foster, Judge of the Court of General Sessions of New York City, says:

Guggenheimer, Untermeyer & Marshall,
No. 37 Wall Street, New York.

April 12, 1912.

Dear Judge Foster:

I am in receipt of your several letters, in which you ask my opinion with respect to the constitutionality of legislation which has been proposed for the sterilization of criminals and degenerates by means of the operation of vasectomy. I regret that I have been so situated as to be unable to give the subject the careful study to which it has been entitled. It has been my intention to do so, but you apparently are desirous of an immediate expression of my views, and I will therefore state them in mere outline, without elaboration or argument.

Doubtless the state has the power, in the administration of punishment to offenders and in dealing with those who may imperil the safety of the public, to segregate them and to exercise a general supervision over them. The exercise of this function comes strictly within the police power of the state, since it affects the public safety and welfare. In the case of criminals the state has the power to impose more drastic punishment upon second offenders and upon habitual criminals than it sees fit to impose upon first offenders. It has likewise the power to impose indeterminate sentences upon those convicted of crime.

Except so far as prohibited by the constitutional prohibition against the imposition of cruel and unusual punishment, I believe that it is within the

power of the state to inflict the death penalty in such cases as at common law were subject to that punishment, and to impose imprisonment up to the limit of incarceration for life, due regard being had to the nature and character of the crime sought to be punished.

The prohibition against the infliction of cruel and inhuman punishment is difficult of precise definition. It is generally understood to have reference to the imposition of torture, of a punishment which is barbarous and wanton and repugnant to the public conscience. Electrocution has been held not to constitute cruel and unusual punishment within the inhibition of the Constitution, in People ex rel Kemmler v. Durston, 119 N. Y. 569, affd. 136 U. S. 436, 446. The decapitation of the hand of a kleptomaniac, the branding of one who has committed the crime of burglary or the amputation of the sexual organs of one guilty of adultery would doubtless, in this age, be deemed cruel and inhuman punishment.

The most recent decision on the subject is to be found in Weems v. United States, 217 U. S. 349, where the Supreme Court held a provision of the Penal Code of the Philippine Islands to impose cruel and inhuman punishment in so far as it prescribed for an offense by an officer of the government who made false entries in public records, the obligation to pay a large fine, imprisonment during twelve years, with accessories such as the carrying of chains, the deprivation of civil rights during imprisonment, perpetual disqualifications to enjoy political rights, to hold office thereafter, and the subjection to constant surveillance. In the dissenting opinion of Mr. Justice White, in which Mr. Justice Holmes concurred, there are collated a large number of precedents, which indicate the extent to which courts have sustained statutes imposing drastic penalties even though they were claimed to be cruel and unusual.

I understand that the operation of vasectomy is painless and has no effect upon the person upon whom it is imposed other than to render it impossible for him to have progeny. If it could be said that such a punishment would only be inflicted in the case of confirmed criminals, there would be strong reasons, founded on considerations of the public welfare, which would justify its imposition. The danger, however, is that it might be inflicted upon one who is not an habitual criminal, who might have been the victim of circumstances and who could be reformed. To deprive such an individual of all hope of progeny would approach closely to the line of cruel and unusual punishment. There are many cases where juvenile offenders have been rendered habitual criminals who subsequently became exemplary citizens. It is true that these cases are infrequent, and yet the very fact that they exist would require the exercise of extreme caution in determining whether such a punishment is constitutional.

Although not entirely certain as to this phase of the case, I have no doubt that the imposition of such a penalty by a commission or state board, or by any tribunal other than a court which is to determine the penalty for the offense of which one charged with crime has been convicted, would be unconstitutional. The determination that such an operation shall be performed necessarily involves the infliction of a penalty. Unless justified by a conviction for crime, it would be a wanton and unauthorized act and an unwarranted deprivation of the liberty of the citizen. In order to justify it the person upon whom the operation is to be performed has, therefore, the right to insist upon his right to due process of law. That right is withheld if the vasectomy is directed, not by the court which imposes the penalty for the crime, but by a board or commission, which acts upon its own initiative or which, under a general provision of law, undertakes to determine whether or not the operation shall be performed on a specific individual.

In this aspect of the case it seems to me that the decision of the Court of Appeals in People ex rel Barone v. Fox, 202 N. Y. 616, which adopted the dissenting opinion of Mr. Justice Clarke in 144 App. Div. 611, is conclusive. In that case it was held that Section 79 of Chapter 659 of the Laws of 1910, authorizing the physical examination by a physician of a woman convicted of

disorderly conduct in that she is a common prostitute, in order to discover whether she is afflicted with any communicable venereal disease and authorizing the magistrates of inferior courts of criminal justice in the City of New York to commit her to a public hospital for treatment for such disease for a certain period not exceeding one year or until she shall be cured, is unconstitutional, since the magistrate is bound by the report of the physician so that the convicted person is deprived of her right to have the fact of the existence of the disease officially determined by the magistrate.

So in regard to the legislation which you now have under consideration, it is my firm opinion that the court which imposes the sentence upon the prisoner can alone impose the penalty of vasectomy, the prisoner being first accorded an opportunity to be heard by the court on the question as to whether or not such penalty shall be inflicted.

To go further than to lay down these general principles, and to attempt to formulate a statute which would fully cover the various questions which may arise in respect to the application of this remedy, is at present impossible for me. I shall continue to consider the subject, which is intensely interesting and important, and if any further ideas suggest themselves to me I shall be very glad to communicate them to you.

I fear that the public is not as yet prepared to deal with this problem; it requires education on the subject. I cannot, however, refrain from expressing the general opinion that the movement is one which is based on sound considerations. The difficulty is, however, in adopting proper safeguards to adequately protect those who are not hopelessly confirmed criminals, degenerates, or defectives.

It is my recollection that I have recently seen a case decided by the Supreme Court of Indiana which has a strong bearing upon this question, but I cannot for the moment lay my hands on it. If I find it I shall send you a reference to the decision.

Very truly yours,

(Signed) LOUIS MARSHALL.

HON. WARREN W. FOSTER,
32 Franklin Street,
New York City.

b. Summary.

If the purely punitive statute of the state of Washington is declared constitutional, how much more surely ought a carefully designed purely eugenical statute be found consistent with the fundamental law of a state—especially if it can be demonstrated that sterilization is an agency capable of cutting off a large portion of our future supply of defective and anti-social individuals, and that it can be applied with due respect for the rights and personal guarantees of the individuals selected for sterilization, and with such discrimination that worthy blood lines will not be cut off. It would, indeed, be folly for the people of a state to enact a sterilization law if they did not believe firmly that certain determinable human defects, causing personal misery and anti-social conduct, are hereditary and incurable in nature, and that by studying the innate traits of the kin of individuals possessing such traits, men of science would be able to determine the nature of such individuals' hereditary qualities in

reference to the specific traits studied. In reference to this aspect let it be said that heredity in many human traits is demonstrated, and the people are beginning to find out the truth concerning the human stock. Practical application of eugenical agencies is now a matter of method rather than principle.

CHAPTER VI.

WORKING OUT OF EXISTING LAWS.

With legislation as with machinery there are a good many parts, each of which must be adjusted and oiled before the machine which is designed and brought into being will operate smoothly and perform the work expected of it. Even though the motive be proper and the principle correct, an ill-designed statute, or an indifferent public, careless institution authorities, derelict state executive agencies, lack of adequate appropriation—and perhaps many other factors, acting either separately or *en masse,* may disable or may even destroy altogether the service expected of the entire mechanism.

The existing sterilization laws are a mixture of mandatory and optional elements, but the mandatory features have thus far not functioned any better than the optional ones. On the other hand, in some instances eugenical sterilization has been carried on without the sanction of any law at all. If a law is considered as experimental, and is meant to be optional, why not provide in the enactment for optional execution? If it is mandatory it should be either enforced or repealed.

It will perhaps be interesting to review the mandatory and optional features of existing laws and to record the facts concerning their enforcement as demanded or permitted by statute. By studying these facts it is hoped to throw some light on the causes of their lack of functioning as designed, with the view to overcoming their ills in a model law.

1. INDIANA.

Date of Law: March 9, 1907.

The organization of an executive committee for each institution and investigation by each such committee are mandatory; but designations for the surgical operation are optional with the board of managers and the committee of and for each institution.

a. Names and Addresses of Executive Agents—Legal Designation. Committee of Experts.

Committee for the Jeffersonville Reformatory.

Dr. David C. Peyton, Superintendent of the Reformatory, Jeffersonville, Ind.

Dr. Harry C. Sharp, West Baden, Ind.

Dr. William M. Varble, Jeffersonville, Ind.

Other institutions subject to the act:

Indiana State Prison, James R. Reid, Warden, Michigan City.

Indiana Women's Prison, Emily E. Rhoades, Superintendent.

Indiana Girls' School, Lilian Meyncke, Superintendent, Clermont.

Indiana Boys' School, Guy C. Hanna, Superntendent, Plainfield.

Central Indiana Hospital for the Insane, Dr. George F. Edenharter, Superintendent, Indianapolis.

Eastern Indiana Hospital for the Insane, Dr. Samuel E. Smith, Superintendent, Richmond.

Northern Indiana Hospital for the Insane, Dr. Fred W. Terflinger, Superintendent, Logansport.

Southern Indiana Hospital for the Insane, Dr. C. E. Laughlin, Superintendent, Evansville.

Southeastern Indiana Hospital for the Insane, Dr. E. P. Busse, Superintendent, Cragmont, near Madison.

Indiana School for Feeble-Minded Youth, Albert E. Carroll, Superintendent, Fort Wayne.

Indiana Village for Epileptics, Dr. W. C. Van Nuys, Superintendent, New Castle.

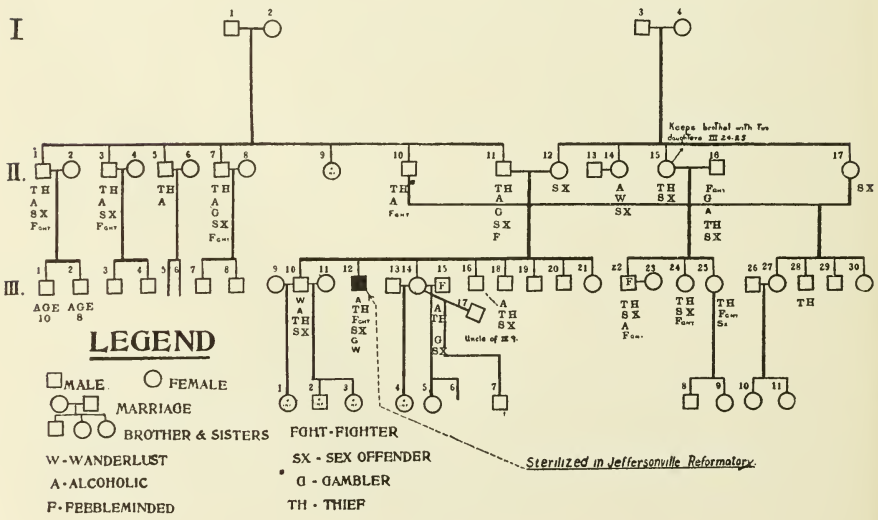
So far as can be ascertained none of these institutions has appointed its committee of experts.

b. History and Extent of Sterilizing Operations.

All of the Indiana operations have been performed at the Jeffersonville Reformatory. In order to obtain a first-hand report of the history of the movement and to observe at close range the actual working of the law a sub-committee of the committee, consisting of the Chairman and Secretary, visited the Jeffersonville Reformatory in January, 1912, this being the only institution in Indiana attempt-

ing to enforce the law. Due credit must be given to Dr. H. C. Sharp, Surgeon at the Reformatory, during the agitation for and the early execution of the law, for energetically promoting and courageously trying out this important eugenical experiment. The committee was courteously received by Dr. David C. Peyton, superintendent of the institution, who was one of the chief advocates of the law, and every opportunity for thorough investigation was given. Three cases of vasectomy were performed on voluntary candidates for the instruction of the committee. More than a dozen sterilized men in the Reformatory were examined by the committee with a view of determining their physical, mental and moral make-up with especial reference to the effects of vasectomy on the sexually perverted instincts and practices, and a trained investigator was left in charge to complete the case history records, and to study the family histories of the vasectomized men in their home territories. In all, thirty pedigrees were obtained. The accompanying pedigree of the W—— family is typical of what the committee found to be the prevailing type of inheritance lines, which were being cut off by vasectomy in Indiana.

PEDIGREE OF THE W== FAMILY OF== INDIANA.



The family is full of shiftlessness, degeneracy and immorality. Certainly no patriotic person could possibly desire that the person sterilized should reproduce his kind, yet if he should reproduce at all, what else could he have done? His inheritance was against him. He could not be persuaded not to beget children, for he had no sex control; he was morally feeble. The only objection to this sterilization in particular consists in the fact that the investigation of the family history came *after* instead of *before* the operation. However, the committee was not able to find a single case wherein it felt that good traits had been cut off or wherein a potential parent of valuable citizens had been rendered sterile. It is not likely that an intelligent executive commission would *often* make mistakes. Even so the state owes it, and the bills of rights of most states insure it, that natural endowments of such importance to the individual as the reproductive power be not taken away (except for medical necessity) without due process of law. It is incumbent upon the state to prove social menace before thus depriving an individual member of society, but when such menace is proved it is equally incumbent upon a progressive order to remove, in the interests of national perpetuity, such a menace.

All of the Indiana operations were vasectomies and were performed by Dr. H. C. Sharp, surgeon of the Jeffersonville Reformatory, who, besides being the chief advocate of the law, is now a member of the board of control of the Jeffersonville Reformatory. His first operation was performed in 1899, eight years before the enactment of the law, and during this interval the operation was performed by him on one hundred and seventy-six men at their own request. During 1907 and 1908 about 125 compulsory operations were performed.

However, during the administration of Governor Thomas R. Marshall, 1909-1913, compulsory operations have been very much in disfavor; the instituiton authorities did not resort to it on account of the Governor's displeasure.

c. Legal Status.

"Constitutionality of act never questioned in court."

THOS M. HORRAN, Att'y Gen., Aug. 11, 1913.

d. Comment:

"No appropriation; not contemplated by the law. Law defective in that regular court procedure is not provided for. Present law very probably unconstitutional. Law should state plainly that it is the purpose of preventing procreation of the unfit and not remedial."

J. N. HURTY,
State Commissioner of Health, Sept. 10, 1913.

. . . . the Indiana law is the worst in my opinion, from a constitutional standpoint. . . . It allows the Board of Managers no voice in the determination of the question; it makes no provision for counsel, for a hearing, nor for any resort to a court. . . . it does not interpose a single safeguard which is extended by other laws relating to liberty or property with which I am familiar, and it seems to me to disregard every constitutional safeguard for a fair and impartial hearing.

CHAS. A. BOSTON, ESQ.,
Dec. 14, 1911, discussion of Dr. J. N. Hurty's paper on sterilization.

"No appropriations were ever made for this work. But the payments for services of the commissioners were always made out of the maintenance appropriation. In my opinion it is the first most important step looking to the cessation of reproduction of the hopelessly defective classes, the second important manner of handling being segregation in permanent custodial care. With our present absolute knowledge of the laws of reproduction why should any state or nation want to have continued the reproduction of those that are hopelessly unfit for citizenship and serve only as a useless tax upon the resources of those capable of citizenship."

DAVID C. PEYTON,
Superintendent of Jeffersonville Reformatory, Aug., 1913.

2. WASHINGTON.

Date of Law: March 22, 1909.

No special executive machinery is provided for; but the order for the surgical operation is optional with the judge passing sentence on guilty rapists.

a. Names and Addresses of Executive Agents.

The Criminal Courts of the State and Henry Drum, Superintendent of the Washington State Penitentiary, Walla Walla, Wash.

b. History and Extent of Sterilizing Operations.

No operation up to August 23, 1913. However, two orders have been issued by the courts—1. Peter Feilen; 2. W. H. H. Revenue, under life sentence in state penitentiary, operation not to be performed until further order from the court.

c. Litigation and Legal Status.

Case of Peter Feilen: Convicted of rape on female under 10 years. Judge of Superior Court of King County, Main J., acting on recommendation of jury, authorized warden of state's prison to have vasectomy performed upon him. Appeal was entered by said Feilen September 30, 1911, but the decision of the court was sustained on the ground that the operation was not "cruel and unusual." Execution of sentence on Feilen in abeyance, pending expiration of time for appeal to the United States Supreme Court, September, 1913.

Superintendent Henry Drum, of the Washington State Penitentiary at Walla Walla, under date of August 23, 1913, says:

> In case of Peter Feilen no action has been taken, as yet, to carry into effect that provision of the sentence calling for vasectomy; the status of the case being that it has been held in abeyance until the expiration of the time for appeal to the United States Supreme Court, which, as I understand it, will be in September of this year. There are petitions from friends of this man who do not believe he was justly convicted or that the crime of which he was convicted ever occurred. What the final result will be cannot at this time be determined.
>
> We have one other case here—that of a young man of doubtful normal mental condition. In this case the commitment contains an order that "an operation be performed upon the said William Henry Harrison Revenue for the prevention of procreation, and said operation not to be performed until further order from the Court." It might appear that the intention of the Court, in making the provision that the operation should not take place until further orders of the Court, was that it should be a saving clause in the event that the young man, now under life sentence, should be discharged from prison.
>
> Under date of November 4, 1913, Superintendent Drum writes: . . . There have been no further developments with Peter Feilen, nor in the Revenue case. No new case along this line has come to my attention.

d. Comment:

A purely optional and punitive statute that should be recast into an operable eugenical measure.

3. CALIFORNIA.

Dates of Laws April 26, 1909, and June 13, 1913.

At the option of the heads of Institutions the examining board must make investigations; but the ordering of the surgical operation is dependent upon finding the same desirable, and even then is optional. (Second statute). In the second statute the same organiza-

tion and procedure is followed, but in addition a special commission of lunacy is given authority, at its discretion, to examine and to sterilize before discharge inmates of instiutions.

a. Names and Addresses of Executive Agents.

A. State Commission in Lunacy.
Hon. Hiram W. Johnson, Governor.
Hon. Frank C. Jordan, Secretary of State.
Hon. U. S. Webb, Attorney-General.
Dr. F. W. Hatch, General Superintendent of State Hospitals.
Dr. W. F. Snow, Secretary of State Board of Health.

B. A series of bodies without legal title, one for each institution, consisting of:
1. Resident physician of the particular state institution.
2. Dr. F. W. Hatch, General Superintendent of State Hospitals.
3. Dr. W. F. Snow, Secretary of State Board of Health.

Institutions subject to the act:

Stockton State Hospital, Dr. Fred P. Clark, Medical Superintendent.

Napa State Hospital, Dr. A. E. Osborne, Medical Superintendent.

Agnews State Hospital, Dr. Leonard Stocking, Medical Superintendent.

Mendocino State Hospital, Dr. E. W. King, Medical Superintendent.

Southern California State Hospital, Dr. John A. Reiley, Medical Superintendent.

Sonoma State Home, Dr. Wm. S. G. Dawson, Medical Superintendent.

b. Legal Status.

No litigation as yet. Constitutionality never seriously questioned.

A simple, direct statute. Does not provide for court review. Operative because of the activity and competency of its executive agents. If sterilization is inconsequential enough to fall within the regulation of police or health authorities, this statute is perhaps sufficient; but if sterilization is of considerable consequence in relation

to individual rights, then every operation should be preceeded by due process of law. Such a process need not be cumbersome; it would under the model law be swift. The object in such a process is to insure to the individual operated upon his rights; that if he possesses not a defective heredity his line of descent shall not be cut off.

c. History and Extent of Sterilizing Operations.

California must be credited with the best enforced sterilization law on the statute books of the twelve states having such laws.

Dr. F. W. Hatch, General Superintendent of the California State Hospitals, under date of June 21, 1912, reports to the committee the following situation in regard to sterilization in California:

The law of California authorizing asexualization is by no means a perfect law, and yet this very imperfection has been the means possibly of acquainting a portion of the public of the probabilities and benefits of the operation.

In putting the law in action in the State Hospitals we have proceeded cautiously and avoided in the great majority of cases any arbitrary action in compelling patients to submit to the operation. It has been recognized as a very radical change in methods, a proceeding about which there was very much disagreement and some considerable feeling. Our plan of proceeding with the work follows an agreement with the Secretary of the State Board of Health and myself, that relatives, where possible should be consulted, the operation explained to them, and their written consent obtained before the work was performed. In many cases where relatives were not to be located and where patients were on the road to recovery and in a state to sensibly consider the subject, we have obtained the consent of patients. In a few rare cases we have operated against the wish of the patients.

The superintendent of a hospital having cases that he believes should be operated upon, takes the case up with the father, mother, husband, or wife, as the case may be, either by letter or personal interview and explains the desirability of the operation, its results, its possible dangers. Consent having been obtained from the nearest relative or relatives, a history of the case with the recommendation of the medical superintendent is sent to my office where the report is considered by the Secretary of the State Board of Health and myself, and our consent granted, if in our opinion it is desirable. The superintendent on being notified of our consent, proceeds with the operation, a report of the work being sent to and kept on file in the office of the Lunacy Commission.

Among those of the male sex the operation is uniformly vasectomy: a local anesthetic is used; the lower end of the vas is left open so that the spermatozoa are discharged into the sac and reabsorbed into the general system.

In the women the usual operation is a salpingectomy, though an occasional oophorectomy is done in cases where diseased conditions seem to indicate it. . . .

Fifty per cent. of the men had either an insane or alcoholic inheritance that could be ascertained. Many of those operated upon have been discharged and are living at home in comfort. As a general rule all are benefited to some extent by the operation. In some of the vasectomy cases but little improvement in the mental condition is to be noted. We endeavor to

keep track of those who are discharged and receive reports from time to time. We have found no ill effects. No interference has been noted in the marital relations.

Properly applied, I believe that sterilization will be of great benefit to humanity if generally adopted. . . .

There is no question but sterilization of confirmed criminals, habitual drunkards, and drug habitues, epileptics, sexual and moral perverts in reformatories and other places of detention, those suffering from the acute recurrent psychosis, is a proper proceeding, and for the benefit of mankind.

The figures on heredity that I have given do not fairly represent the actual amount of inheritance as in many cases we could obtain no family history, though the character of the mental affection would indicate previous disease in ancestry. In our experience in this state we find very much less trouble in obtaining consent of relatives at the present time than when we first commenced the work. It is apparent that the public are being educated up to the value of the work.

It is still too early to estimate the efficiency of the new statute.

In the report of the Commission in Lunacy, June 30, 1912, Dr. Hatch says (pages 21 and 23):

In several of the states that have adopted sterilization or asexualization laws it is clearly stated that it is a proposition of eugenics, "a cutting off of the inheritance lines." In California the purpose is for the physical, moral, or mental benefit of the patient. We have found that it does many patients much good, while in others there has been little effect on the mental condition, but generally some improvement in the general health. Under the operations of the law we have in the state hospitals and the home for feeble-minded asexualized 268 persons, 150 men and 118 women, while one has been operated upon in state prison. . . . .

Much credit is due the superintendents of the Southern California State Hospital and Stockton State Hospital, who have done most of the work, for their patience and painstaking energy. The question of asexualization is becoming more and generally discussed by those who look deeply into the question of the influence of heredity in the production of that "permanent underlying state of the nervous system, which we commonly call predisposition." . . .

In putting this law into active work we have tried to keep track of such cases operated upon as we could, in order that we might have knowledge of their subsequent experiences and feelings about it. Such as have reported have felt no ill effects, but on the contrary have expressed satisfaction that the operation has been done. The relatives have coöperated with us in an unexpectedly affirmative way, and at times mothers of young girls with unfortunate histories have requested that the work be done for protection's sake. We have in but very few cases operated upon women without consent.

Our work of gaining the consent of the relatives has demonstrated a reasonableness to suggestion and explanation that has been encouraging and that is regarded as evidence, not only of their belief that the operation may be of benefit to the physical, moral or mental welfare, but also the recognition of it as a means of preventing possible future dangers.

4. CONNECTICUT.

Date of Law: August 12, 1909.

The organization and activity of the commission is mandatory and so is the surgical operation if defective heredity is found.

a. Names and Addresses of Executive Agents.

Legal designation: "A board," which for each institution consists of the superintendent of the institution and the skilled surgeons appointed by the directors of each particular institution.

For the State Prison at Wethersfield:

Dr. Edward S. Fox, Physician to the State Prison, Wethersfield, Conn.

For the State Hospital for the Insane at Middletown:

Dr. H. S. Noble, Superintendent of Connecticut Hospital for the Insane at Middletown.

Dr. Everitt J. McKnight, 110 High street, Hartford, Conn.

Dr. William H. Carmalt, 261 St. Ronan street, New Haven, Conn.

For the State Hospital for the Insane at Norwich:

Dr. H. M. Pollock, Superintendent of State Hospital for the Insane at Norwich.

Dr. Harry Lee, New London, Conn.

Dr. William L. Higgins, South Coventry, Conn.

These three institutions only are named in the statute; by inference the law does not apply to any other institutions in the State.

b. History and Extent of Sterilizing Operations.

The Board has been called together but once at the State Prison. Four or five candidates for the operation of vasectomy were presented, but in no one was a history obtainable sufficient to justify the operation. With one exception they were sentenced for sexual crimes and the Board did not feel that it could advise the operation with the meagre family history given. In the exceptional case noted the convict was a horse thief who thought if the operation of vasectomy was performed it could be used as an argument for his release from prison.

W. H. CARMALT.

Dr. Henry M. Pollock, Superintendent of the Norwich State Hospital, under date of Oct. 27, 1913, reports that seven persons, 2 men and 5 women—all (with the exception of one woman—March, 1911) since 1913—

have been under the law operated upon at this institution and two of the women have already left the hospital, as they could in consequence of the operation be safely released from custodial care. Vasectomy was performed on the male cases and complete ovariotomy on the female. I also beg to advise you that at least one additional male case will shortly be reported to the Board of Trustees and that in all probability other cases will be presented within the coming year. I should like to add that, due to the opposition which apparently developed at the time of the enactment of the law, upon

my recommendation to the Board of Trustees, they decided that no cases were to be referred to the surgical board until they had been considered by the entire medical staff of the institution and the majority of the staff decided that such an operation would be advisable nor until a synopsis of their family and personal history had been brought before the Board of Trustees at a regular meeting and the Board had sanctioned the reference to the surgical board. This was not only with the idea of satisfying the public that the operation was not performed in a haphazard manner, but only after careful study and also to properly safeguard the patients in the institution.

Dr. Pollock also reports several voluntary cases operated upon for individual reasons without invoking the eugenical sterilization law.

c. Legal Status.

There has been no litigation under the statute. In an opinion given to the Warden of the Connecticut State Prison December 9, 1912, the Attorney-General expressed the opinion that the statute is constitutional.

Rept. Atty. Gen. 1911-1912, p. 240.

d. Comment:

The law as it stands is practically inoperable, as the presentation of candidates rests entirely upon the judgment, *i. e.*, fancy, of the superintendent in charge, and if he is opposed to the law as in the cases of the superintendents of the two Insane Hospitals, none are presented. The Board or some impartial authority should have the power to examine the inmates independent of the Executive of the Hospital. Besides there are no funds to pay for a proper genealogical history, without which no operation should be performed in the judgment of the Board.

The Board is paid at the option of the Superintendent of the respective institution from its general funds.

W. H. CARMALT.

I cannot agree with the statement that the law as it now stands is practically inoperable. The attorney-general has decided that the law is constitutional, and we anticipate more and more having the operation performed upon suitable individuals. We do not, however, expect to have the operation performed at this hospital until after each individual case has been given careful consideration. We anticipate that the field worker now at this institution will secure reliable information of the family and personal history and will thus be a great help in assisting us in deciding in regard to the advisability of the operation being performed.

H. M. POLLOCK,
Superintendent of the Norwich State Hospital.

5. NEVADA.

Date of Law: March 17, 1911.

No special executive machinery is provided for; but the order for the surgical operation is optional with the judge passing sentence on guilty rapists.

a. Names and Addresses of Executive Agents.

The Criminal Courts of the state.

D. D. Dickerson, Warden Nevada State Prison, Carson City, Nevada.

b. History and Extent of Sterilization Operations.

No sentence of sterilization as yet (Aug. 18, 1913).

c. Legal Status.

Comment: No litigation as yet. Modeled after the Washington statute. A purely punitive statute that should be recast into an operable eugenic measure.

6. IOWA.

Dates of Laws: April 10, 1911, and April 19, 1913.

Both statutes make the organization and activity of the executive machinery mandatory, and also the surgical operation if defective heredity is found.

a. Names and Addresses of Executive Agents.

The Managing Officer and the Physician of each state institution, together with the State Board of Parole.

State Board of Parole:

W. H. Berry, Indianola, Iowa.
David C. Mott, Marengo, Iowa.
John E. Howe, Greenfield, Iowa.

Institutions subject to the act:

Iowa State Penitentiary, J. C. Sanders, Warden, Fort Madison.

The Reformatory, Charles G. McClaughry, Superintendent, Anamosa.

Industrial School for Boys, W. L. Kuser, Superintendent, Eldora.

Industrial School for Girls, F. P. Fitzgerald, Superintendent, Mitchellville.

Clarinda State Hospital, Max E. Witte, Superintendent, Clarinda.

Independence State Hospital, Dr. W. P. Crumbacker, Superintendent, Independence.

Cherokee State Hospital, Dr. W. N. Voldeng, Superintendent, Cherokee.

Mount Pleasant State Hospital, C. F. Applegate, Superintendent, Mount Pleasant.

State Hospital for Inebriates, H. S. Miner, Superintendent, Knoxville.

Iowa Institution for Feeble-Minded Children, Dr. George Mogridge, Superintendent, Glenwood.

In addition to these state institutions the law would seem to include the county institutions as well, the inclusive phrase of the statute being "each public institution in the state."

b. History and Extent of Sterilization Operations.

No operations reported *as performed under the act,* although a few operations such as contemplated by the law have been performed, with the consent of relatives of patients, at the hospitals for the insane.

c. Legal Status.

Comment: No litigation as yet.

Iowa authorities express to this committee their opinion that the new statute will be more operable than the old one. One provision of the new act provides that the Board of Parole shall make an annual report of their proceedings under the act, to the Governor, and shall submit their observations and statistics regarding its benefits. Evidently the Iowa Legislature expects the act to function and is still open to enlightment on the subject.

7. NEW JERSEY.

Date of Law: April 21, 1911.

The statute makes the organization of the executive commission mandatory, and in general requires its activity, but it is optional with the commission whether or not the order be given for surgical sterilization.

a. Names and Addresses of Executive Agents.

Legal designation:
Board of Examiners of Feeble-Minded, Epileptics, and Defectives:

Dr. Henry B. Costill, 21 N. Clinton Avenue, Trenton, N. J.

Dr. Alexander Marcy, Sr., 408 Main street, Riverton, N. J., and Joseph P. Byers, *ex officio,* Commissioner of Charities and Corrections, State House, Trenton, N. J.

Institutions subject to the act:

New Jersey State Prison, Samuel W. Kirkbride, Supervisor, Trenton, N. J.

New Jersey Reformatory, Dr. Frank Moore, Superintendent, Rahway, N. J.

New Jersey State Home for Girls, Elizabeth V. Mansell, Superintendent, Trenton, N. J.

New Jersey State Home for Boys, John C. Kalleen, Superintendent, Jamesburg, N. J.

New Jersey State Hospital, Dr. Henry A. Cotton, Superintendent, Trenton, N. J.

New Jersey State Hospital at Morris Plains, Dr. Britton D. Evans, Medical Director, Greystone Park, N. J.

New Jersey State Village for Epileptics, Dr. David F. Weeks, Superintendent, Skillman, N. J.

New Jersey State Institution for Feeble-Minded Women, Dr. Madeline A. Hallowell, Superintendent, Vineland, N. J.

In addition the county institutions of the 21 counties of the state are subject to this act.

b. History and Extent of Sterilization Operations.

Up to August 1, 1913, *no operations* had been performed under the act. If the Supreme Court decides that the statute is constitutional, it is expected that the act will be more actively enforced.

c. Litigation and Legal Status.

Test Case of Alice Smith: Ward of the state and inmate of State Village for Epileptics at Skillman, selected by commission for the purpose of testing the constitutionality of the law. Papers filed

with County Clerk, November 12, 1912; writ of certiorari was served on the Attorney-General December 26, 1912. Constitutionality of the law in part denied, November 18, 1913. See decision of Supreme Court cited at page 54.

> The New Jersey statute . . . is designed to interpose several of these safeguards (*i. e.*, those of personal rights lacking in the Indiana statute—Ed.), but as they grow in constitutional soundness it seems to me that these laws lose in the possibility of practical efficiency on account of the delay and expense necessarily incident to the trial such as is called for by the New Jersey law. . . .
>
> CHAS. A. BOSTON, Esq.,
> Dec. 14, 1911. Discussion of Dr. J. N. Hurty's paper on sterilization.

d. Appropriation available.

Initial appropriation of $500.00. The two appointive members to receive $10.00 per day for all meetings held at institutions, same being paid by the institution for which the service is rendered.

8. NEW YORK.

Date of Law: April 16, 1912.

The organization and the activity of the board of examiners is mandatory and so is the operation if defective heredity is found. The order for the surgical operation is subject to court review.

a. Names and Addresses of Executive Agents.

Legal designation: Board of Examiners of Feeble-Minded, Criminals, and Other Defectives:

Dr. Charles H. Andrews, Surgeon, 588 W. Delaware Street, Buffalo, N. Y.

Dr. Lemon Thompson, Neurologist, 28 Maple Street, Glen Falls, N. Y.

Dr. Charles C. Duryea, Practitioner, 1352 Union Street, Schenectady, N. Y.

Institutions subject to the act:

Auburn State Prison, Auburn, N. Y. G. W. Benham, Warden.

Clinton State Prison, Dannemora, N. Y. H. M. Kaiser, Warden.

Sing Sing Prison, Ossining, N. Y. J. S. Kennedy, Warden.

Great Meadow Prison, Wingdale, N. Y. W. J. Homer, Warden.

State Farm for Women, Valatie, N. Y. John H. Mealey, Warden.

New York State Reformatory, Elmira, N. Y. P. J. McDonnell, Superintendent.

Eastern New York Reformatory, Napanoch, N. Y. P. J. McDonnell, Superintendent.

State Agricultural and Industrial School, Industry, N.Y. David Bruce, Superintendent.

New York State Training School for Girls, Hudson, N. Y. Dr. Hortense V. Bruce, Superintendent.

Western House of Refuge for Women, Albion, N. Y. Alice E. Curtin, Superintendent.

New York State Reformatory for Women, Bedford, N. Y. Dr. Katherine B. Davis, Superintendent.

New York State Training School for Boys, Yorktown Heights, N. Y. F. H. Briggs, Superintendent.

Syracuse State Institution for Feeble-Minded Children, Syracuse, N. Y. Dr. O. H. Cobb, Superintendent.

State Custodial Asylum for Feeble-Minded Women, Newark, N. Y. Dr. Ethan A. Nevan, Superintendent.

Rome State Custodial Asylum, Rome, N. Y. Dr. Charles Bernstein, Superintendent.

Craig Colony for Epileptics, Sonyea, N. Y. Dr. William T. Shanahan, Superintendent.

Letchworth Village, Thiells, N. Y. Dr. Charles S. Little, Superintendent.

Matteawan State Hospital, Fishkil-on-Hudson, N. Y. Dr. John W. Russell, Superintendent.

Utica State Hospital, Utica, N. Y. Dr. H. L. Palmer, Superintendent.

Willard State Hospital, Willard, N. Y. Dr. Robert M. Elliott, Superintendent.

Hudson River State Hospital, Poughkeepsie, N. Y. Dr. C. W. Pilgrim, Superintendent.

Middletown State Hospital, Middletown, N. Y. Dr. M. C. Ashley, Superintendent.

Buffalo State Hospital, Buffalo, N. Y. Dr. A. W. Hurd, Superintendent.

Binghampton State Hospital, Binghamton, N. Y. Dr. C. G. Wagner, Superintendent.

St. Lawrence State Hospital, Ogdensburg, N. Y. Dr. R. H. Hutchings, Superintendent.

Rochester State Hospital, Rochester, N. Y. Dr. E. H. Howard, Superintendent.

Gowanda State Hospital, Gowanda, N. Y. Dr. D. H. Arthur, Superintendent.

Kings Park State Hospital, Kings Park, N. Y. Dr. W. A. Macy, Superintendent.

Central Islip State Hospital, Central Islip, N. Y. Dr. G. A. Smith, Superintendent.

Long Island State Hospital, Brooklyn, N. Y. Dr. E. M. Somers, Superintendent.

Mohansic State Hospital, Westchester, County, N. Y. Dr. I. G. Harris, Superintendent.

Manhattan State Hospital, Ward's Island, N. Y. Dr. Wm. Mabon.

b. History and Extent of Sterilizing Operations.

Up to present time about 75 cases have been examined in the different institutions, and many of these will be proper cases for action by the Board, it is calculated; after necessary preliminary work has been done, the operative work will progress rapidly. The inmates of several institutions, as well as many not now in institutions, have requested the Board to operate on them.

BOARD OF COMMISSIONERS, May 10, 1913.

c. Appropriation Available.

The Legislature of 1913 appropriated (by Chapter 791) $5000 for the services and expenses of this board. Up to December 5, 1913, the expenditures from this appropriation amounted to $4217.52. For the expenditure of this amount it would have been reasonable to expect that the board would have at least begun field studies into the "family histories" of persons suggested for eugenical sterilization, as contemplated by the law, and have presented a test case to the courts for the purpose of determining the constitutionality of the act. The New Jersey Board, with less than one-tenth the expenditure, have accomplished this, and the Wisconsin Board, with only $2000 at their disposal, are about to undertake field studies.

d. Lega! Status.

No litigation as yet.

The law is ample authority for effective work but the Commission is moving slowly, investigating the records of inmates committed to institutions, their family histories, and the several matters involved with sterilization, such as after care, segregation, colony, life, etc.

It is the opinion of many that the Commission should operate on a number of typical dangerous cases, now under public care, and demonstrate the benefit of sterilization, that the people of the state may have opportunity to observe the physical, mental and moral effects following operations upon such persons.

ROBT. W. HILL,
Superintendent State and Alien Poor, Aug. 12, 1913.

9. NORTH DAKOTA.

Date of Law: March 13, 1913.

The organization of the executive machinery is mandatory; but nomination for the surgical operation is optional with heads of institutions, and the operation itself is optional with the board. By a second provision the chief medical officer of an institution, with the consent of the inmate, may perform the operation without bringing the matter to the attention of the board.

a. Names and Addresses of Executive Agents: Legal designation: Board of Examiners.

..... The Secretary of the State Board of Health, *ex officio,* the chief medical officer of the particular institution, and for each institution, a competent physician and surgeon appointed by the State Board of Control and holding office at their pleasure.

These officers and institutions are as follows:

J. W. Brown, Superintendent of State Reform School, Mandan, N. D.

F. O. Hellstrom, Warden of the State Prison, Grove, N. D.

W. M. Hotchkiss, Superintendent of Hospital for the Insane, Jamestown, N. D.

Dr. H. A. LaMoure, Superintendent of Feeble-Minded Institution, Grafton, N. D.

b. History and Extent of Sterilizing Operations.

Since the North Dakota law was enacted only a few months ago it is not yet possible to judge of its efficacy in actual operation.

This law is in keeping with the recommendations of this committee, in that of the seven state institutions under the State Board of Control, the inmates of the Reform School, Penitentiary, Hospital for the Insane, and Feeble-Minded Institution are subject to its provisions, while the students at the School for the Deaf at Devil's Lake, the School for the Blind at Bathgate, and the patients of the Tubercular Sanitarium at Dunseith are exempt from its operation.

Under date of November 4, 1913, Mr. Ernest G. Wanner, Secretary of the Board of Control of State Institutions, writes:

> . . . Our last legislature passed a bill authorizing sterilization of certain inmates in the Reform School, the Penitentiary, the Insane Asylum and the Feeble-Minded Institute. The bill provided that the sterilization was optional and in no case mandatory with the superintendent of the institution under the supervision of this Board.
>
> We beg to inform you also that there is no use being made of the law at the Reform or Penitentiary institutions although the matter is being taken up in regard to the latter. There has been appointed as sterilization surgeon at the State Hospital for the Insane, Dr. R. G. DePuy of Jamestown, and as surgeon for the Institution for Feeble-Minded, Dr. J. E. Countryman of Grafton, N. D.
>
> In regard to any active work done, we wish to state that there have been a number of males sterilized at the Hospital for Insane, and when the new building in course of construction is completed, offering proper hospital facilities, both males and females will be sterilized whenever it is thought proper. The nature of the operation on the female makes it dangerous at the institution at the present time.
>
> If you will make the same request in about a year, we will be able to write you with more intelligence in regard to the results obtained.

10. MICHIGAN.

Date of Law: April 1, 1913.

As in Connecticut and Iowa, the activity of the board is mandatory, and so is the surgical operation, if defective heredity is found.

a. Names and Addresses of Executive Agents.

The law vests the execution of this statute in the management of the institutions, i. e., the managing boards and the superintendent, the inmates of which are subject to its provisions. The superintendents are as follows:

Dr. A. J. Noble, Superintendent of Kalamazoo State Hospital, Kalamazoo, Mich.

Dr. E. A. Christian, Superintendent of Pontiac State Hospital, Pontiac, Mich.

Dr. J. D. Munson, Superintendent Traverse City State Hospital, Traverse City, Mich.

Dr. E. H. Campbell, Superintendent Newberry State Hospital, Newberry, Mich.

Dr. O. R. Long, Superintendent Ionia State Hospital, Ionia, Mich.

Dr. H. A. Haynes, Superintendent Michigan Home and Training School (formerly Home for Feeble-Minded and Epileptic), Lapeer, Mich.

b. History and Extent of Sterilizing Operations.

The legislative reference department informs us under date of October 29, 1913, as follows:

> Under the law, all operations are to be reported to the State Board of Health, but inquiry at the office thereof shows that no reports have been made at this date.

11. KANSAS.

Date of Law: April 29, 1913.

Study by the commission is mandatory, and in case hereditary defect is found, it is mandatory to report the case to a court of record, upon which court, if it is satisfied that the finding is correct, it is mandatory to order the surgical operation. Negligence on the part of the head of an institution in examining inmates constitutes a misdemeanor and is punishable by fine and imprisonment.

a. Names and Addresses of Executive Agents.

The statute requires the initiative to be taken by the managing and medical officers of state institutions. These institutions and officers are as follows:

Topeka State Hospital (insane), Topeka, Kan., Dr. T. C. Biddle, Superintendent.

Osawatomie State Hospital (insane), Osawatomie, Kan., Dr. L. L. Uhls, Superintendent.

Parsons State Hospital (epileptics), Parsons, Kan., Dr. M. L. Berry, Superintendent.

School for Feeble-Minded, Winfield, Kan., Dr. Fred Cave, Superintendent.

State Penitentiary, Lansing, Kan., J. B. Botkin, Warden.

The district court of the district in which the particular institution is located must pass upon the nominations of the management of the institution.

b. History and Extent of Sterilization Operations.

Since the law has been on the statute books only a few months, it is still too early to estimate its practicability.

12. WISCONSIN.

Date of Law: July 30, 1913.

The organization of the executive machinery is optional with the State Board of Control, but later provisions of the statutes imply the necessity of its organization. The selection of the individual for the operation and the ordering of the surgical operation are optional with the board.

a. Names and Addresses of Executive Agents.

The executive agents consist of one surgeon and one alienist, appointed by the State Board of Control, which surgeon and alienist act in conjunction with the superintendents of the state and county institutions. The appointment of the surgeon and alienist has not yet been made.

The institutions subject to the act are:

Wisconsin State Prison, Waupan, Wis. Rev. Daniel Woodward, Superintendent.

Wisconsin State Reformatory, Green Bay, Wis. C. W. Bowron, Superintendent.

Wisconsin State Hospital for Insane, Mendota, Wis. Dr. Chas. Gorst, Superintendent.

Northern Hospital for the Insane, Winnebago, Wis. Dr. Adin Sherman, Superintendent.

Wisconsin Home for Feeble-Minded, Chippewa Falls, Wis. Dr. A. W. Wilmarth, Superintendent.

Milwaukee County House of Correction, Milwaukee, Wis. W. H. Momsen, Superintendent.

Milwaukee Hospital for the Insane, Wauwatosa, Wis. Dr. M. J. White, Superintendent.

In addition to these there are thirty-five county asylums (71 counties) for the chronic insane.

b. Appropriation Available: The Wisconsin statute is supported by an initial appropriation of $2000. The State Board of Control has announced its intention of expending a part of this money in first hand field investigations into the hereditary traits of the persons nominated for the operation. This is most encouraging. It is also understood that a test case will soon be presented to the courts for the purpose of determining the constitutionality of the act. Should the act, which is purely a simple police measure, be found constitutional, should liberal appropriations follow, and should the State Board of Control follow out its present inclinations, the law should function splendidly. The executive machinery has simplicity and directness of control in its favor.

13. SUMMARY.

In the recent sterilization laws an entirely new social agency is being tried out, and the general legislative formula for an operative statute, making for the end sought, is only now being worked out by experimental laws. The laws already enacted are in part mandatory, and in part optional, and, in the absence of a general demand for action, there is little wonder that the executive machinery refuses to operate, especially where harmonious design is lacking, or adequate appropriations for the work are not provided, or where state officials are not eager to defend a new type of law of little popularity, and, as many of them are drawn up, of doubtful constitutionality. It, moreover, is evident that active hostility and opposition would arise if there should be a sudden attempt to practice legal eugenical sterilization in a thoroughgoing manner.

More eugenical sterilizing operations have been performed without the sanction of the law than have been performed under its provisions, or even under its shadow.

Altogether less than 1000 operations have been performed under the several laws. While each operation, if it cuts off a line of degenerates, is eugenically of value, and is not therefore to be despised, still if the whole problem of racial degeneracy is to be attacked by this method, sterilization on a vastly greater scale will have to be

resorted to. With the existing statutes there has been practically no public pressure brought to bear on officials nominally entrusted with carrying out the provisions of the law. This condition is due, doubtless, to the fact that public knowledge concerning the factor of heredity in human degeneracy—and therefore in anti-social conduct—is, generally speaking, very meagre. But as the facts concerning human heredity in general become more widely diffused and as eugenical field studies in many states ascertain in large measure the location of specific heritable defects in certain human strains, it is felt that there will be an awakening of a public eugenic conscience, and that in this field, as in so many others, society will not be long in appropriating for its own use the laws of nature which scientific study discovers.

The most slothful legislature or the most selfish administration *must yield* to popular pressure demanding social reform; but representative and progressive public servants will *strive to lead* in such matters.

The least that can be said in favor of these laws is that they have been worth while in that they have provided valuable data for the next step in the development of a consistent policy for the extirpation of innate defects and deficiencies.

The next chapter will analyze the specific shortcomings of the existing statutes, and Chapter VIII will attempt to present a model statute, profiting by the experiences of the twelve states which, under these pioneer laws, sought to achieve a betterment of the inborn capacities of the human stock by the use of this new social agency.

CHAPTER VII.

CRITICISM OF EXISTING LAWS.

These criticisms are based largely upon the data recorded in Chapter VI, The Working Out of Existing Laws. In addition to the facts thus recorded, the eugenical problems involved have been carefully considered. For the purpose of convenience let the criticisms be discussed under the following headings:

1. Motive and prevailing spirit of the statute.

I. Organization and Procedure Provided by the Existing Sterilization Laws.

State.	I. Mandatory and Optional Features.			II. Nature of Examination Required.			III. Criteria for Determining Upon the Operation.			IV. Legal Basis of Order.		V. Comment.
	1. Organization of the Executive Body.	2. Investigation by the Executive Body.	3. Operation if Certain Defect is Found.	1. Mental or Physical Condition.	2. Personal History.	3. Family History: Heredity.	1. Operation Desirable on Account of	2. Procreation Deemed	3. Person Adjudged or Deemed—	1. By Police Authority (i.e., Without "Due Process of Law"), Vested in	2. Due Process of Law.	Net Gain to Date.
1. Indiana	Mandatory	Mandatory	Optional	Mental and physical				"Inadvisable"	Deemed "unimprovable"	"Committee of experts"		300 vasectomies. A dead letter in all institutions, except the Jeffersonville Reformatory.
2. Washington	None provided		Optional						Adjudged "habitual criminal"		Criminal courts only	A decision of the Supreme Court, sustaining punitive sterilization
3. California	All ex-officio	Mandatory	Optional	"Full particulars" of mental and physical			Benefit to the individual		In case of criminals deemed "a moral or sexual degenerate or pervert"	"State Commission in Lunacy" with assistance.		268 operations up to June, 1912, gradually extending.
4. Connecticut	Mandatory	Mandatory	Mandatory	Mental and physical	"Record"	"As far as can be ascertained"		"Inadvisable"		"A board"		Thus far a dead letter. Signs of life at the Norwich Hospital.
5. Nevada	None provided		Optional						Adjudged "habitual criminal"		Criminal courts only	Not made use of as yet.
6. Iowa	All ex-officio	Mandatory	Mandatory	Mental and physical	"Record"	"Family history"	Defective offspring			"State Board of Parole" with assistance		A few operations under the "shadow" of the law. In 1913 a new and more promising law.
7. New Jersey	Mandatory	Mandatory	Optional	Mental and physical				"Inadvisable"	In case of "criminals adjudged as with confirmed criminal tendencies"	Original order by a quasi judicial "Board of Examiners, etc."	Subject to court review if order is questioned	A court decision against the law, which has been appealed.
8. New York	Mandatory	Mandatory	Mandatory	Mental and physical	"Record"	"Family history"	Defective offspring		In case of criminals adjudged "confirmed criminal tendencies"	Original order by a quasi judicial "Board of Examiners, etc."	Subject to court review if order is questioned	Practically a dead letter thus far.
9. North Dakota	Mandatory	Optional	Optional	Mental and physical		"As far as practical"	Defective offspring			"Board of Examiners"		1913 Law. Too early to judge.
10. Michigan	All ex-officio	Mandatory	Mandatory	Mental and physical	"Record"	"As far as can be ascertained"	Defective offspring or benefit to the individual			"Management of any institution; in certain cases with professional expert advice"	In cases of insanity wherein parents or guardian object, question of sanity is referred to the Probate Court of County	1913 Law. Too early to judge.
11. Kansas	All ex-officio	Mandatory	Mandatory	Mental and physical	"History"	"History"			In case of criminals "convicted of felony, involving moral turpitude"	Nomination by "managing officers" of State institutions	Final order by "District Court"	1913 Law. Too early to judge. Theoretically the best law.
12. Wisconsin	Mandatory	Optional	Optional	Mental and physical				"Inadvisable"		"State Board of Control" with assistance		1913 Law. Too early to judge. Situation promising.
Recommended Model Law	Mandatory	Mandatory	Mandatory	Mental and physical	"Record"	"Family history"	Defective offspring			Original investigation by a commission which nominates persons for the operation to a court of competent jurisdiction	Final order given by the court after a hearing of the facts and permitting the counsel for the nominated person for the operation to be had	80 or more operations per year per 100,000 total population.

II. Administrative Details Provided by the Existing Sterilization Laws.

State.	1 Executive Agents. (a) appointed by	1 Executive Agents. (b) directly responsible to—	2 *Official Title* of executive body.	3 *Initiative* in enforcing the act to be taken by—	4 *Concurrence* necessary to constitute an order by the executive body.	5 *Notification* of or hearing by inmate, kin, or guardian required before giving order.	6 *Incumbent* upon upon whom to *carry out* the order.	7 *Said party* (column 6) *directly responsible to whom* for carrying out the order.	8 Who may legally perform operation duly ordered.	9 *Accountability* of said person (column 8) for results thereof—	10 Source of Funds for (a) *Investigation* by 1. *Institution* having subject in custody.	10 Source of Funds for (a) *Investigation* by 2. *Executive Commission.*	10 Source of Funds for (b) *Surgical fee* if any.
1. Indiana	Management of each institution	Not mentioned*	"Committee of experts"	Committee of experts	Committee of experts and Board of Managers. Vote not mentioned	Not mentioned	Not mentioned	Not mentioned*	Committee of experts	Not mentioned	None provided	None provided	Maintenance of institution not to exceed $3.00 per case
2. Washington	Ex-officio	Not mentioned	None	Court passing sentence on rapists		Not mentioned	Not mentioned, presumably warden of the prison	Not mentioned; by implication the court	Not mentioned	Not mentioned	None provided	None provided	Not mentioned
3. California	All ex-officio	Not mentioned	State Commission in Lunacy is the principal executive	Commission in Lunacy; and for criminals, resident physician of any State prison	Not mentioned	Not mentioned	Superintendent of State Hospital in certain cases, in others not mentioned	Not mentioned	Not mentioned	Not mentioned	None provided	None provided	No extra fee
4. Connecticut	One ex-officio; two by institution management	Not mentioned	None; "a board"	The Board	Majority	Not mentioned	Member of board duly appointed for the task	Not mentioned	One of the members of the board	Not mentioned	None provided	TheState; sum deemed reasonable by superintendent of institution served	TheState; sum deemed reasonable by superintendent of institution served
5. Nevada	Ex-officio	Not mentioned	None	Court passing sentence on rapists		Not mentioned	Not mentioned; presumably warden of the prison	Not mentioned; by implication the court	Not mentioned	Not mentioned	None provided	None provided	Not mentioned
6. Iowa	All ex-officio	Must make annual report to the Governor	State Board of Parole is the principal executive	State Board of Parole together with officers of each institution	Majority	Not mentioned	Physician of the institution	Not mentioned	Physician of institution or one designated by him	Not mentioned	None provided	None provided	Not mentioned
7. New Jersey	Governor with advice of the Senate	Not mentioned	"Board of Examiners of Feeble-minded, Epileptics and Defectives"	Managing officer of institution	Board of Examiners and chief physician of particular institution; unanimous vote	Notification and hearing	Not mentioned	Not mentioned	"Any person qualified under the laws"	Not accountable	None provided	Maintenance of each institution served	Maintenance of institution
8. New York	Governor	Not mentioned	"Board of Examiners of Feeble-Minded, Criminals and other Defectives"	Board of Examiners	Majority	Notification and hearing	Member of board duly appointed for the task	Not mentioned	One of the members of the board	Not mentioned	None specifically provided	Per diem and expenses. Source not mentioned; presumably of State Treasury. $5,000 available for 1913-14	Not mentioned apart from the per diem
9. North Dakota	Two ex-officio; one by State Board of Control	Must make report on observations of persons operated upon to the Governor	"Board of Examiners." In care of criminals: State's Attorney	Managing officer of institution	Not mentioned	Not mentioned	Not mentioned	Not mentioned	"Skilled surgeon," not one of their own number	Not accountable	None provided. In care of criminals; expense of the county	Per diem and expenses paid as agents of the State Board of Control	Not mentioned
10. Michigan	All ex-officio	Not mentioned	None; "a board"	Management of institution	Majority	Notification; 30 days	Managing board of the particular institution	Not mentioned	"Competent physician or surgeon"	Not mentioned	None provided	Special examiners paid from "general fund of the State"	No extra fee
11. Kansas	All ex-officio	Not mentioned	None; "authority."	Managing officer of each institution.	Not mentioned	Hearing	Managing officer of the particular institution	Fine and imprisonment for neglect to carry out an order within 60 days. Direct responsibility to specific person, not mentioned*	One of the Commission; designated by the court	Not mentioned	By implication; maintenance of institution having subject in custody	By implication; maintenance of institution having subject in custody	Maintenance of institution
12. Wisconsin	State Board of Control	State Board of Control	None	State Board of Control	Unanimous vote	Notification; 30 days	Not mentioned	Not mentioned	Not mentioned	Not mentioned	Not provided for	Direct appropriation 1st year $2,000	Not mentioned
Recommended Law	Governor or State Board of Control	Governor or State Board of Control—whichever appoints the members	The Eugenics Commission	Eugenics Commission	Majority vote	Notification and hearing	Responsible head of institution having custody of persons ordered sterilized	Eugenics Commission	"Any skilled surgeon duly licensed in the State"	Not accountable	Direct legislative appropriation to the particular institution	Direct legislative appropriation to the Eugenics Commission	Supplied from Medical and Surgical Fund of the particular institution

* In cases wherein responsibility of the executive body for its general efficiency and of the person upon whom it is incumbent to execute the order are not in the statute stated as specifically due to a certain named higher authority, it is presumed, it appears, to be due directly to the appointing power and indirectly and ultimately to the Governor.

2. The viewpoint as to the import of sterilization: whether it be held to be within police regulatory powers, or whether it be deemed of sufficient consequence to require, in each case, due process of law.
3. The executive agencies provided.
4. Persons subject to the law.
5. Procedure in nominating persons for sterilization.
6. Nature of the investigation demanded.
7. Criteria for determining upon sterilization.
8. Types of surgical sterilizing operations authorized.
9. Operability, including the responsibility for and the mandatory element in each step.
10. Appropriations available.

The accompanying tables (I. Organization and Procedure, etc., and II. Administrative Details, i. e., Charts 4 and 5) trace the claim of procedure and the concurrent claim of responsibility in the execution of the existing laws; and supply in concise form the additional data needed in this criticism. From a study of these tables it is hoped to throw some light upon the reasons why the existing statutes do not operate as designed. Indeed, it is held by some that legislation can in no way aid the extirpation of hereditary defectiveness; this idea was expressed by Governor Pennypacker in vetoing the Pennsylvania act. The committee, however, takes a different view, namely, that legislation in a well organized and honestly administered state can provide effectually for the execution of logical plans for social betterment, and that a statute based upon the experience of the earlier experimental sterilization laws and scientific truth can be drawn up, which will, if competently administered, function as designed.

1. *Motive and prevailing spirit of the statutes.*

All of the existing sterilization laws are by implication eugenical, which implication means that the authors of the laws held that heredity is responsible in a greater or less degree for degeneracy and antisocial conduct. The acknowledgment of such is found in the preambles of the statutes of Indiana, Iowa, New Jersey, Kansas, and North Dakota, while the latter state adds to its statute an emergency clause in hastening the application of the law, stating, among other things, "whereas heredity plays a most important part in the trans-

mission of crime, insanity, idiocy, imbecility, etc." Heredity is acknowledged more directly in the body of the Connecticut and New Jersey statutes. So far as can be ascertained from the preambles and texts of the statutes, the laws of Indiana, New York, New Jersey and Wisconsin are purely eugenical, while those of Connecticut, Iowa, North Dakota, Michigan, Kansas, and Oregon are also in part therapeutic.

Two of the states—Washington and Nevada—provide for sterilization from a punitive motive, their statutes are eugenical only by implication. In several others—California, Iowa, and Oregon (the last now revoked)—the punitive element is present, but it is subordinated either to the eugenical or therapeutic. Lines of human descent should be cut off because they are dangerous to the state, not because their carriers have committed statutory offenses; the remedy should be applied *directly* to the cause. In following the indirect route, wrong might many times be wrought. The punitive laws provide for such punishment only in retribution for such heinous crimes—apparently possible only to a low order of humanity—that it is not likely that injustice and eugenic wrong would often be wrought, but even the *possibility* of such should be guarded against. In every case wherein sterilization is in whole or in part punitive, it is meted out as punishment for some type of sexual offense. In this there is an implied eugenical motive, but such provisions are perhaps the result of a vindictive feeling that such retribution is especially fitting for such offenses.

Since eugenical sterilization is in no sense a punishment, the selection for sterilization by a non-judicial procedure, of individuals who have been duly and often involuntarily by due process of law committed to the state's custody as persons who are socially inadequate, does not, as some have held, resemble twice placing life and limb in jeopardy for the same offense. The basis of designation for sterilization is inferior potential parenthood; that for committing to institutions is anti-social or incompetent conduct. These two motives should not be confused with each other—nor should the two be considered synonymous with punishment of any sort, except in the commitment of criminals. The only motive that should pervade the spirit and wording as well as the execution of a sterilization statute should be the eugenical one—the cutting off of degenerate lines of human descent.

2. *The viewpoint as to the import of sterilization, whether it be held to be within police regulatory powers, or whether it be deemed of sufficient consequence to require in each case, due process of law.*

In the opinion of the committee the greatest defect in the existing statutes is, that they consider sterilization of so little consequence to the individual and to the race that a person once duly committed to prison, or to an institution for the insane, the epileptic, or the feeble-minded is thereby made subject to sterilization on examination and selection by a non-judicial executive commission merely. The chances are that most persons thus selected would be cacogenic, but the fact of their commitment, under present methods, to such institutions is not *per se* sufficient evidence of their racial unworthiness. A sterilization law in order to be just should be based upon due process of law, in which the person nominated for sterilization shall in person, or by friend, and counsel be represented, and in which the burden of proof of unworthy heredity must be assumed by the state.

In concluding a vigorous article in the September, 1913, number of the "Journal of the American Institute of Criminal Law and Criminology," Charles A. Boston, of the New York bar, says:

> Our Bills of Rights are full of the concise expressions of the experience of political philosophers after viewing reflectively the mistakes of ardent enthusiasts of the past. These may not be the last words of political wisdom, but they are at least wise brakes.
>
> Before advocating such laws, I would wish to be assured that . . . the safeguards of liberty are not to be thrown aside for a merely imaginary good; that they be preserved as far as possible and that crude legislation (and in my view it is all crude) be avoided. . . .
>
> But now we are confronted with a new flood of laws, which leaves the personal liberty and a part of the life of the individual and posterity to the arbitrary judgment and guess, if not the mere whim and caprice, of possibly unskilled and unsympathetic judges, without any of the substantial safeguards, which we all regard as our greatest inheritance from the English Constitution and the founders of our own nation.

The statutes of the states of Connecticut, California, Iowa, North Dakota, Michigan, Oregon (revoked) and Wisconsin consider sterilization as a police or sanitary measure—not requiring due process of law. The revoked Oregon statute expressed its purpose by the phrase "for the peace, health and safety of the state." The Oregon statute provided an easy method of appeal; the statutes of New York and New Jersey provide for quasi judicial procedure,

and for a hearing in court for certain cases and contingencies, while the Kansas statute requires that all nominations, by the executive agents, for sterilization, shall be reported to a court of competent jurisdiction, which court shall, after a hearing, determine the matter; this, in the opinion of the committee, more nearly than any other sterilization statute provides due process of law.

The situation, then, in reference to this feature of the existing statutes is this, all of the existing statutes, with the possible exception of the Kansas statute, have totally inadequate provisions for safeguarding the rights of the individual designated for sterilization; no hearing is provided; no easy method of appeal may be had by persons whose sterilization has been decided upon. An operation of such vital consequence to both the individual and the state should be safeguarded more amply than is possible by existing statutes. Every step in the sterilization procedure, with its accompanying responsibility and criteria for the next step, should be prescribed by statute, the experience of the existing laws demonstrating this necessity, not only in the interests of justice, but also in the interests of efficiency. Such a chain of processes need be neither long nor expensive. The preliminary investigations and designations should be made by a competent executive commission who should report their findings with a recommendation to the court of competent jurisdiction. The person selected for sterilization or his friends and counsel should have a hearing and the burden of proof of potential parenthood of defectives should rest with the state. If such proof is not produced to the satisfaction of the court, then the recommendations of the executive commission should be denied. If, however, such potential parenthood is demonstrated to the satisfaction of the court, then an operation for effective sterilization, in a safe and humane manner, should be ordered. If exception is taken to the decision of the court, an appeal with a suspension of the order should be provided for. Such a procedure would, in the opinion of the committee, provide for due process of law, and would overcome this objection to the existing statutes.

The limiting of the existing laws to the inmates of institutions does not, in the opinion of the committee, constitute class legislation in the legal sense of the term, and is therefore not objected to as a legal defect. And since such limitation does not involve social justice, it is not objected to on any grounds.

3. *The executive agencies provided.*

A law is no more effective than the adequacy of its executive machinery, and the competency and zeal of its executive agents. In states wherein the application of the law is optional, or wherein inadequate executive machinery—or none at all—has been provided, or wherein no appropriation for carrying out the provisions of the statute has been provided, the execution of the law depends almost entirely upon the zeal of the managing head of some institution, or of some private individual who succeeds in bestirring the duly appointed authorities into activity.

In the opinion of the committee an efficient executive body should consist of a commission appointed either directly by the governor, or in states wherein a State Board of Control manages all of the state institutions for the socially inadequate, by such board. The said commission should be directly responsible to the appointive powers, and should be composed of an expert each in psychology (or psychiatry), pathology, and biology—the three sciences directly concerned. They must be provided with funds commensurate with their tasks; this latter provision is so important that it is made the subject of a distinct topic—number **10**, page **112**.

There are many eugenical problems with which the state must ultimately cope. Besides the work of segregating and sterilizing degenerates, the issuing of marriage licenses and otherwise administering, in the light of eugenical knowledge, governing and limiting marriage selection, will have to be carried on by a commission, bureau, or office of the state, possibly at some future date—one subordinate branch having charge of the administration of the sterilization laws, and another of the marriage laws. Doctor Davenport says:

> It is suggested that the Eugenics Commission might assume the duty of the Board to administer the state laws limiting marriage selection, such as relate to the marriage of defectives and diseased persons, consanguineous marriages, and miscegenation. As proposed in Bulletin Number Nine of the Eugenics Record Office, such a board should appoint a corps of state physicians, who shall examine applicants for marriage licenses, shall issue such licenses, and shall appoint eugenics field workers to examine family histories. In case the duty of the Eugenics Commission shall be extended to the administration of marriage laws, it is suggested that a general practitioner of law might be added to the commission or should replace the psychologist.

4. *Persons subject to the law.*

Most of the states provide that inmates of certain state and county institutions for the anti-social classes shall be liable to the provisions of the sterilization act. While theoretically it would be desirable to go into the whole population and to select the potential parents of defectives for eugenical sterilization, still in the present stage of advancement of the science of handling the anti-social classes, such radical procedure would not be practicable.

While commitment to our institutions is not *per se* sufficient evidence of the social unworthiness of an individual, still it sets such person apart from the general population and because of the fact that a majority of such persons belong to cacogenic strains, the state is amply justified in inaugurating investigation into the facts of the case—so much is a simple police right and duty, but the actual order for an operation should be given only as a result of a fair hearing before a court of competent jurisdiction.

Wisconsin, Iowa, and New Jersey provide for the extension of the law to the county institutions. The Michigan law limits the selection of individuals for sterilization to the inmates of "any institution for defectives maintained wholly or in part by public expense."

It seems wise, then, for some time to come, to limit the activities of the executive commission in nominating persons for sterilization to individuals already committed to institutions for the socially unfit, and in addition to such limitations amply safeguard each selection. Indeed, thus limited as the field of selection is, it is sufficient for attaining the desired end.

No matter how inferior the hereditary qualities of an individual might be, there would be no object, under modern institutional management, in sterilizing *for eugenical purposes* an individual who is not to be released. It is sufficient therefore to provide for sterilization only in case the potential parent of defectives is about to be returned to society at large.

5. *Procedure in selecting persons for sterilization.*

None of the existing laws prescribes in detail a complete procedure in selecting persons for sterilization. The reason is, perhaps, that in these laws such selections are considered police measures and the procedure is left to the executive body of wide discretion. Thus

far the court procedures provided in the laws have been so ordered that great delay is their chief characteristic, and execution of the statutes is governed not by the mandates of the laws, but by the zeal of their executive agents. But if a sterilization law be based upon due process of law, it should, since it seeks to invoke a new agency, provide specifically for every step in both the preliminary activities of the executive commission, and in the court procedure—from the initiation of the study of the particular individual, until the operation is finally had, or until sterilization is decided against.

The law should require that the initiative in reference to family history studies be taken by the institution having the particular person in custody, and that such study should begin immediately upon receiving a person at the institution. Automatically, reports on the family history studies of these inmates should be made to the executive commission in ample time to allow for their examination, verification and extension by the commission, for the necessary court procedure, and for the operation and convalescence (if an operation should be decided upon) before the time set for release of the inmate. Moreover, the law should be so harmonious in design, and so well supported throughout that such procedure would move with all speed consistent with thoroughness and justice.

6. *Nature of investigation demanded.*

One of the most serious objections to present forms of these laws is that they either demand too meagre a body of facts—if any at all—concerning the persons proposed for sterilization, or that the facts demanded are not those most pertinent to the subject. The facts demanded should bear directly upon this one subject, and this one alone, namely, "Is so-and-so a potential parent of socially undesirable offspring?" There is only one method by which it can be pursued, and that is, to make first-hand investigation of these things:

1. Physical and mental condition.
2. Personal history and record.
3. *Family history.*

Connecticut and Wisconsin deserve special notice at this time, for they are about to attack their problems in the light of modern studies in human heredity. In Connecticut the new period of activity is due largely to the studies and zeal of Superintendent Pollock of

the Norwich State Hospital, who now has a trained field worker in eugenics on the hospital staff, and has inaugurated first-hand studies of the families of the individuals proposed for sterilization. Institution authorities, observing the patients or inmates week after week and even year after year, have much better opportunity, especially if they have field workers at their disposal, for determining the potential and family qualities of inmates than the committing court could possibly have. For this reason the law should provide that the first studies in family history shall be made by the institution having the particular inmate in custody, and subsequently such studies should be continued by the commission.

It is encouraging also to learn that the Wisconsin State Board of Control at its meeting on November 6, 1913, canvassed the situation, and applied through the Honorable Elmore T. Elver, Madison, to the Eugenics Record Office for a trained field worker to study family histories and to describe the innate traits of the various members of the family networks of the persons proposed for sterilization. This is a step in the right direction. Certainly sterilization should proceed no faster than the investigation of the innate traits and hereditary qualities of the persons proposed to sterilize.

The tables at the beginning of this chapter give an outline of the nature of the investigations demanded by each state. The New York statute provides, more clearly than any other, for the study of the "family history," but thus far the New York statute is a dead letter. The Oregon law, recently revoked by referendum, also provided for the study "in a careful and thorough manner, and in accordance with the recognized rules of medical science." Family history study is also expected by the laws of Connecticut, North Dakota and Michigan, North Dakota requiring family history study "as far as practicable;" and Connecticut and Michigan "as far as can be ascertained." The Kansas statute expects the "history of the individual as far as can be ascertained to be secured." One would infer that *family* history is meant by this statute, although one might also infer that the *personal record* of the individual was referred to.

The executive body should be required to present to the court the first-hand facts pertaining to these three subjects. The executive body should therefore have every opportunity and facility that the law can provide it with for securing these facts.

7. *Criteria for determining upon sterilization.*

The purpose of demanding an investigation of a specified character should be to secure data for determining the truth in reference to a given situation. When the facts are demonstrated the remaining procedure should follow according to the principles laid down in the law. There should be harmony between the nature of the required investigation and the criteria for sterilization; the former should be such as would result in securing adequate data for the latter. The criterion for determining upon the sterilization of a given individual within the classes liable should be his or her potentiality to produce inferior or anti-social offspring. All investigations should therefore be directed toward securing data bearing upon personal analysis and family history.

It should be definitely expressed in the law, that primarily the study of family history, and secondarily the personal history, and the thorough examination into the mental and physical conditions are the tests for determining hereditary qualities. The California statute is particularly loose in this particular, unless the expression "full particulars" should be made to include family history. The laws of Iowa, North Dakota, Michigan, and Kansas come more specifically to the point by making the criterion for determining upon a proposed sterilization, the liability of the person in question to produce defective offspring. The statutes of Indiana, Connecticut, Iowa, New Jersey, Michigan, Kansas, and Wisconsin use the expression, in reference to procreation, "deemed inadvisable." This by itself, unsupported by a demand for the study of family history and a subsequent finding of likelihood of parenthood of defectives, is quite inadequate; it is little better than the provision "in the opinion" found in California and North Dakota statutes. The Indiana and Connecticut statutes seem defective in that they consider the task of the executive commission largely a matter of surgery rather than primarily a study in natural inheritance; secondarily, a matter of due process of law, and finally a humane surgical operation.

In Indiana, the first Iowa, the New Jersey, New York, North Dakota, Michigan, and Kansas statutes the expression "and there is no probability that the condition of such person so examined will improve to such an extent as to render procreation by any such person advisable," or the equivalent in meaning, is found. Certainly all

the students of heredity will agree that this is a useless and impossible proposition. Hereditary traits are dependent upon ancestry, and do not rise and fall in value with the condition of the individual. If venereal disease is referred to by these expressions, and the measure is a therapeutical one, then such provisions would be admissible.

The California statute is based upon the therapeutic benefit to the person operated upon, but in the report of the commission in lunacy (1912) it is stated that "heredity was definitely traced in 119 cases out of the 268 operated upon—44%." It doubtless existed in many more cases, and it should be incumbent upon the state to demonstrate hereditary unworthiness, either by the application of a general rule of heredity proven to be applicable to the particular case, or by first-hand field studies in family pedigree.

As the science of heredity advances it is clear that in certain, even recessive, traits the somatic characteristics of an individual constitute an index, within certain limitations, of such person's germplasm. In such cases such evidence of inferiority should be admitted by the commission and by the court. When the facts concerning human heredity become more definitely formulated, it may be found wise in the interests of speedy procedure to prescribe by law the rules governing and evaluating the evidence of sufficient proof of potential parenthood of defectives, but at present it would seem wise to omit such, and to require in the interests of double surety the extended investigation called for by the model statute, or it may be that at some future time, the socially inadequate who are to be committed to institutions will be so thoroughly studied by the courts ordering the commitment that certain types and classes will, in accordance with some future discovered rules of heredity, be known to be carriers of defective heredity. If such should be the case an order for their sterilization at the termination of their custody might be made a part of the committing order; but at present, and doubtless for a long time to come, every case should be studied separately by the commission.

One of the principal eugenical benefits which may be expected to accrue from the present demand for thorough scientific investigation and due process of law in each case is that, on account of the thoroughness and justice of such methods, the *time will be hastened when the commission will be authorized to extend its studies and nominations for sterilization to the general population.*

In the Twenty-third Annual Report of the New York Commission in Lunacy (February 14, 1912), there appears the following table:

FAMILY HISTORY OF FIRST ADMISSIONS.

	NUMBER	PER CENT. OF ASCERTAINED CASES
Cases with history of insanity	1,184	27.7
Cases with history of nervous diseases, alcoholism, etc.	981	22.9
Cases with no history of insanity, nervous diseases, etc	2,116	49.4
Total ascertained cases	4,281	100
Family history unascertained	1,419	

The usual case-history of the hospitals provides for a paragraph or so on heredity; and if such cursory examinations found heredity in 38 per cent. of the total first admissions, or in 50.6 per cent. of all cases cursorily inquired into, that a thorough field examination should reveal a higher percentage of heredity is very certain. Indeed one of the striking results of field study by the field workers of the Eugenics Record Office and other institutions is that in many cases the family networks of patients not known to be related are shown upon investigation to be closely interwoven; and that in many cases wherein a quality is denied in other members of the family it is found to be possessed by many of the kin. The problem consists not so much in indicating "heredity" as in studying the family traits of as many members as possible of the family network as carefully and as thoroughly as the physicians study the particular patient, and in arriving at an evaluation of the social worth of the possible descendants of such an individual. What sort of traits can he or she transmit in a given mating? What is their social value or menace? Undesirable findings to such queries should alone be the criteria for determining upon the sterilization of the unfit who are about to be returned to society at large.

8. *Types of surgical sterilizing operations authorized.*

The statute should, within certain special limits, prescribe the types of surgical operations permitted in legal and eugenical sterilization. The several laws vary in regard to this feature. The Michigan statute provides for that "surgical operation which is least dangerous to life, and will best accomplish the purpose." Indiana and Wiscon-

sin provide for that operation which will be "safest and most effective." Kansas and Connecticut provide simply for the operation in a "safe and humane manner." While, quite extraordinarily, New Jersey and New York provide for the operation which would be "most effective;" the feature of safety and humanity being omitted. Doubtless the operations under this law would be executed as safely and humanely as modern institutions and hospitals could provide, but even the possibility of a perversion of the intention of the law in this respect should be provided against.

The provision for safety and humanity in the actual surgical operation should be found in every sterilization law, but beyond ordering with these limitations surgical operations for effective sterilization, it would appear wise in the model statute to instruct the court to leave the determination of the particular type of sterilizing operation with the commission whose experience should be relied upon to select the operation least dangerous or most beneficial to the individual. Operations designed to prevent procreation, except as authorized by law, are unlawful and punishable by fine and imprisonment in Iowa, Connecticut, New York, Michigan and Kansas. It seems, however, for the reasons stated in comment on section 7 in chapter VIII, unwise to include such a provision in a statute authorizing eugenical sterilization.

9. *Operability, including the responsibility for and the mandatory element in each step.*

Unless it be the failure to provide due process of law, the most serious objection—the faundamental one—is that for the most part the existing sterilization laws are dead letters. In no case, unless it be in California, has a governor—the sworn champion and executive of the law—taken any steps, aside from perfunctorily naming the commission, to insure the actual enforcement of the law as contemplated. Governor Marshall of Indiana "suspended" the law during his administration in that state. This particular criticism will, however, be confined to the intrinsic factors of operability; the extrinsic elements were discussed at length in chapter VI, of this study—"The Working out of Existing Laws."

In general it must be said of the existing statutes that although they are on the statute books, they do not function as intended because they are in most part ill-designed and inharmonious. There

are too many weak links in the procedure provided, the breaking of any one of which will destroy the usefulness of the entire act. Where court procedure is provided it is not adapted to insure speedy justice. Nor do these laws provide for sufficiently thorough and just examination into the facts of each case; neither are they supported by adequate appropriations. They must be subjected to tests in the highest courts of their respective states, and in the light of legal test, practical application, scientific study, and moral considerations, all of them will have to be amended or recast if they are to accomplish valuable eugenical ends.

These statutes present a medley of mandatory and optional features in reference to the sequence of procedure in their execution. There should be logical sequence ordered by the statute, including the appointment of the commission, their activity, the procedure in designating persons for sterilization, and the actual performance of the operation in case such is decided upon. Regardless of whether a step be by law mandatory or optional, the laws have functioned about the same, in every case depending upon the zeal of executive agents. This latter fact alone should be sufficient to teach the states that in the future a sterilization law should make provision for insuring a zealous executive body. It would also seem essential that an operable law should provide specificially for a consecutive series of steps from the appointment of the executive agents and the initiation of their studies to the actual operation, or to a definite decision that such sterilization will not be had. The sequence should be reasonable and logical; in case a set condition is presented when one step is taken, it should be mandatory to take the next and so on to the termination of the case. Moreover a parallel chain of responsibility should accompany this series of steps. The existing laws invariably present missing links; the New York statute, for instance, which, aside from being clumsy, withstands a more generally consistent theoretical analysis than any of them except that of Kansas, is thus far a dead letter because of certain missing links, among them is the lack of responsibility by the executive body; it is sufficient that they spend their appropriation as they see fit.

In only one state is there a provision for penalizing delinquent and derelict officials. The Kansas statute provides for fine and imprisonment for neglect on the part of officials to make investigations as contemplated by law. The managing officers of the institutions

of the state subject to the act must comply with the provisions of the statute making investigation into the condition of inmates of institutions compulsory; or in dereliction they "shall be guilty of a misdemeanor and subject to a fine of not more than $100.00 or imprisonment in the county jail for not more than thirty days, or both." It will be interesting to see how this provision works out. This provision, however, seems to be unnecessary in states which are in the habit of enacting laws that an honest and competent governor will enforce as the will of the law-making body. It appears to the committee that the statute of the state governing incompetency and dereliction would be sufficient to cover such shortcomings. In case of executive incompetency, it would appear much better that the governor should remove the incompetents and replace them by better men, than that the state should attempt to insure impossible executive competency by fine and imprisonment. Nevertheless the lack of the mandatory element with its accompanying responsibility in reference to the activity of their executive agents is a serious handicap to the laws. It may be that in the absence of competent agencies for investigating each case, an injustice and oftentimes a social and eugenical injury would be wrought by the incorporation of such a feature. If, however, a law is to be eugenically of value, it must not only provide for a competent agency for making the preliminary studies and in managing the cases in court, but it must also be mandatory in providing for sterilization in certain cases established to be cacogenic. As stated elsewhere, the need of providing for membership on the executive body of a biologist acquainted with the modern studies in heredity, to coöperate with the medical experts is obvious, for the study of human heredity is primarily a biological science and its application is largely a matter of biological concern. Sterilization without irrefutable and scientific evidence that the person about to be operated upon is the possessor of a defective germ-plasm is not apt to be eugenical and it certainly would not be just.

To summarize this particular objection, the existing statutes lack harmony and coöperation in design.

10. *Appropriations available.*

Appropriations adequate to enable the state to employ capable men who shall devote their entire time and energy to the work con-

templated by law are uniformly lacking. A law is no better than its executive. An executive, howsoever competent, can do no more than its funds, wisely, honestly, and economically expended, will permit. Most of these laws have been dead letters because, among other handicapping influences, they were not supported by adequate funds. Even in the smallest of the several states the task of passing upon the hereditary qualities of inmates of state institutions is a large one, and can be properly done only by serious and capable men, devoting their entire energies to the task. However, in comparison to the future expense of caring for the offspring of present state wards, such expense would be trifling.

The Wisconsin statute provides for an appropriation available for the Board of Control in enforcing the sterilization law. While this initial appropriation is small ($2,000.00), it is a step in the right direction; it will enable the Board of Parole to inaugurate first hand field studies, and while the Wisconsin law provides for an examination into the mental and physical condition of the inmate, the Board of Parole of Wisconsin is about to undertake family history studies in connection with the examinations specificially ordered by the statute. This is in keeping with the provision of the Wisconsin statute, which requires the Board of Control's appointees to pass upon the advisability of the sterilization of the persons examined. This sum wisely spent will enable the Wisconsin executive body to secure data with which they will be able to demonstrate to the people of the state and to the legislature that by such field studies the state can locate its degenerate family strains.

The New York Commission had $5,000.00 at its disposal, but so far as can be ascertained no such valuable collecting of data is contemplated by it.

The New Jersey Commission with very limited funds has from its efforts secured for eugenical interests a valuable court decision.

Sterilization determined upon without sufficient facts would be grossly unjust; such facts can be secured only by expensive study; and so without funds the whole procedure, if it be just, must fail. In order to provide sufficient funds for the work of the commission, it would be necessary for the state to appropriate annually,—in part directly to the commission, and in part to the institutions,—a sum of money equal to one month's maintenance for each person to be discharged from state's custody during the year. Much good can

be accomplished with less money but the state cannot expect efficient work on a scale sufficiently broad to contemplate the cutting off of the lines of descent of the lowest tenth of our population for a less appropriation than this.

11. *Summary:* In ending these criticisms of the existing sterilization laws it seems proper again to call attention to the fact that these laws are pioneer efforts in a new field of social and biological endeavor. That the statutes do not function wherein they were mandatory does not lessen their value as experimental laws, nor does it demonstrate the falsity of the principle upon which they were established. A mandatory statute in order to function must be consistently designed throughout, it must be consonant with the facts of nature, with the fundamental law of the land, and with the enlightened ideals of justice and, if it requires special executive machinery in order to make it operative, such machinery besides being called into being must be supported by funds commensurate with the task before it.

Most of the existing statutes have some elements of virtue. The Kansas provision for court review is simple and direct, and amply protects the constitutional rights of the person selected for sterilization; moreover it seems adapted to insuring that there be no impediment in executing the law by referring each case to a court of justice. As much cannot be said of the procedure provided for in New York and New Jersey. The California statute, also, has a very commendable feature, namely, that all inmates of institutions must, "before their release or discharge therefrom," be subject to the scrutiny of the executive officers of the sterilization law. Michigan provides that the class subject to the selection of the executive commission are those "supported wholly or in part by public expense." In words, the New York law provides more clearly than any other for the study of "family history."

The law-making body of the state must follow a public sentiment demanding action, but, more than this, it should sometimes lead. A progressive legislature composed of leaders in the various lines of human endeavor will study the affairs of the state thoroughly and will enact laws which they deem necessary and proper for promoting the general welfare of the people. Legislation should keep pace with scientific advances, and the recent sterilization laws are an attempt to do this. For these reasons the twelve states that

have enacted sterilization laws are entitled to the thanks of the American people for courageously trying out this new and promising agency for racial betterment. The necessary preliminary experience has been secured, and, following the growth of public enlightenment in the matter of heredity and social conduct, the existing laws should be revised and strengthened—made to function properly—and the remaining states should, one by one, adopt just and humane statutes profiting by the experience of these twelve pioneer states.

A critical study of the scientific problems involved, and of the motive, the design, and the practical working out of these experimental laws, point toward their virtues and defects; the former are made use of, and the latter, so the committee believes, are overcome in the model statute presented and recommended in the next chapter of this study.

CHAPTER VIII.

MODEL LAW: INTRODUCTORY, PRINCIPLES, TEXT, EXPLANATORY COMMENT.

In the light of the study of the several existing statutes legalizing sterilization, of such bills passed by the different legislatures but vetoed by their respective governors or revoked by referendum, and of bills still in various stages of legislative advancement; by an investigation of the actual working out of existing laws, by the careful study and due consideration of the practical eugenical problems involved, and through the presentation of court decisions and of the opinions of learned jurists, the committee has prepared the following outline of principles of a model sterilization law and the full text of such a statute, which we respectfully commend to the several states as probably efficacious in effecting the desired end.

The legal processes called for by the proposed statute are designed to insure a speedy and just hearing of each case proposed for sterilization, and the giving of the final order only as a result of due process of law and expert study, both of which the committee contends are prerequisites of the utmost importance in deciding a matter so vital in the individual and to society.

This model statute should be submitted to competent lawyers and administrators of institutions in each state proposing to enact such a law, in order to insure that in detail the proposed statute

conforms legally and in a practical working manner to the institutional, administrative, and court organizations and processes, and to the constitutional requirements of the particular state.

1. PRINCIPLES PROPOSED FOR MODEL STERILIZATION LAW.

(1) That both in intent and phrasing the proposed sterilization law should follow the strictest eugenical motives, and should be based upon the theory that sterilization is of such consequences that it should be ordered only by due process of law and only after expert investigation.

(2) That the inmates of all institutions for the insane, the feeble-minded, the epileptic, the inebriate, and the pauper classes, and of all reformatory and penal institutions be made liable to examination into their personal and family histories with the view to determining whether such individuals are potential to producing offspring who would probably, because of inherited defects or anti-social traits, become social menaces or wards of the state.

(3) That such determination be made by a Eugenics Commission composed of persons possessing expert knowledge of biology, pathology, and psychology.

(4) That the responsible head of the institution, in whose custody the particular inmate subject to the provisions of this act may be, be required to furnish the Eugenics Commission with data on said inmate's mental and physical conditions, innate traits, personal record, family traits and history.

(5) That such examination be made of *all* members of the aforesaid classes *prior to release* from their respective custodians.

(6) That in case it is found for any given individual of the classes herein enumerated that he or she is the potential parent of defectives, the commission shall report its findings and recommendations to a state court of competent jurisdiction, and shall recommend an appropriate type of sterilizing operation.

(7) That the court shall examine the evidence, allowing ample opportunity for the individual in question, or his relatives, guardian or friends to be heard; whereupon, if the aforesaid court is satisfied that the individual in question is a person potential to producing offspring who would probably, because of inherited defective or anti-

social traits, become a social menace or a ward of the state, such court shall order the responsible head of the institution under whose custody the individual in question may be, to cause to be performed upon such person in a safe and humane manner, a surgical operation of effective sterilization before his or her release or discharge.

2. MODEL STERILIZATION LAW.

AN ACT to prevent the procreation of feeble-minded, insane, epileptic, inebriate, criminalistic and other degenerate persons by authorizing and providing by due process of law for the sterilization of persons with inferior hereditary potentialities, maintained wholly or in part by public expense.

BE IT ENACTED BY THE PEOPLE OF THE STATE OF.....

SECTION 1. There is hereby established for the state of..... a Eugenics Commission whose duties are hereinafter defined, and which shall be composed of three persons possessing respectively expert knowledge in biology, pathology, and psychology.

SEC. 2. Immediately after the passage of this act the Governor (or State Board of Control) shall appoint the members of the Eugenics Commission, one of whom he (or said State Board of Control) shall designate as chairman. Any determination or order concurred in by two members of the commission shall be deemed an order of the commission. The members of the commission shall hold office at the pleasure of the Governor, (or State Board of Control), and vacancies in the commission shall be filled by him (or by said board) as they occur. Immediately after their appointment the commission shall assemble, shall organize their body and shall proceed to carry out the provisions of this act. The members of the Eugenics Commission shall be required to devote their entire time and attention to their duties as herein contemplated, and for their services shall be compensated from state funds not otherwise appropriated; and for the performance of their duties as herein contemplated, the aforesaid commission shall be directly responsible to the Governor (or State Board of Control).

SEC. 3. It shall be the duty of the Eugenics Commission to examine into the innate traits, the mental and physical conditions, the personal records, and the family traits and histories of all prisoners, inmates, and patients of all of the state and county institu-

tions for the insane, the feeble-minded, the epileptic, the inebriate, the criminalistic, and pauper classes, and of all individuals of such classes in private institutions supported in whole or in part by state funds, excepting always permanent custodial cases, with the view to determining whether in each particular case the individual is a person potential to producing offspring who, because of the inheritance of inferior or anti-social traits, would probably become a social menace, or a ward of the state. If after such investigation the commission is of the opinion that a given inmate is a person potential to producing such offspring, it shall be the duty of the commission to report its findings and to recommend an appropriate type of sterilizing operation to (state court of record of competent jurisdiction) at least thirty (30) days before the day set for the release of such person from the custody of the state.

SEC. 4. The aforesaid court shall thereupon set a day for hearing the facts of the case, and shall immediately order that either the person nominated for the operation, his nearest kin, lawful guardian or close friend, be notified forthwith in writing of the time, place and nature of the aforesaid hearing; provided that in cases wherein, on account of the mental or physical conditions of the person so nominated, such notification would, in the opinion of the commission, be inadvisable, and wherein, in the same case, the whereabouts of neither the aforesaid mentioned nearest of kin, lawful guardian, nor close friend within the state be known to the commission, it shall be sufficient for said commission to endorse the notification statement with a statement of the reasons why such notification was not served.

SEC. 5. On the date previously set for the hearing as herein contemplated the aforesaid court shall with all speed consistent with thoroughness examine the findings and recommendations of the commission, and shall hear any objections that may be offered thereto. The commission shall be represented at the hearing by the (proper state or county attorney) and shall defend their recommendation, and in all subsequent litigation incident to the execution of their duties as herein contemplated, the commission shall have the services of the (said proper state or county attorney). The court may at its discretion appoint counsel to represent the person nominated for sterilization, and shall fix the compensation for such services, which compensation shall be paid from the funds from which other similar

court expenses are now paid. If after due consideration the court is satisfied that the individual prisoner, inmate, or patient nominated for sterilization is a person as found by the commission, namely, one who is potential to reproducing offspring who would probably, because of the inheritance of inferior or anti-social traits, become a social menace, or a ward of the state, it shall be lawful and it shall be the duty of the aforesaid court to authorize and to order the Eugenics Commission to order the responsible head of the institution in whose charge the particular person nominated for sterilization may be, to cause to be performed on such person in a safe and humane manner, before his or her discharge or release from the custody of the state, an operation for the prevention of begetting or of conception, as the case may be; and the type of operation may be made a part of the order of the commission in each case; provided that said operation shall not be had within five (5) days after the giving of the order therefor; and the aforementioned responsible head of the institution, in whose custody the person subject to a particular order for sterilization may be, shall be directly responsible to the Eugenics Commission for the execution of the operation as ordered.

Sec. 6. In case of a decision by the court contrary to the recommendations of the Eugenics Commission, said commission may at its discretion order an appeal to (state court of competent jurisdiction); and the execution of any such original order for sterilization as herein provided for may be suspended by any judge of (court of competent jurisdiction) in the county in which the particular prisoner, inmate or patient may be confined, until the hearing and determination of objections to the said order, which hearing shall be had not later than the next special term for motions of the court, and an appeal will lie from the determination of such objections as from an order in a special proceeding. Pending the final determination of such a suspended order or of an appeal by the commission, the subject of the particular order for sterilization shall remain in the custody of the state.

Sec. 7. After ordering the operation as hereinbefore provided for, any such operation may be performed by any skilled surgeon licensed in the state, who may be designated by the responsible custodian of the person ordered sterilized, and any expense incurred by the operation shall be borne by the institution in

whose custody the person sterilized may be. The aforesaid order shall constitute complete authority for the performance of said operation, and no skilled surgeon, duly licensed in the state, performing the same, shall be questioned in any place or held responsible for the performance of the same.

SEC. 8. It shall be the duty of the managing heads of all the state and private institutions subject to the provisions of this act to coöperate with the Eugenics Commission in the execution of their duties as herein contemplated, and to secure appropriate data concerning innate traits, personal records, and family histories and traits of the prisoners, inmates or patients of their respective institutions subject to the provisions of this act and to furnish said data to the Eugenics Commission at least sixty (60) days before the date set for the release of each particular inmate.

SEC. 9. The Eugenics Commission shall have full authority to make further study of the personal and family histories of persons subject to the provisions of this law, furnished as herein contemplated by the managing heads of institutions; and in the prosecution of such investigations the commission shall have the right to summon persons and to administer oaths, and shall have free access to all court and institution records of this state likely to be of service in such investigations.

SEC. 10. It shall be the duty of the Eugenics Commisssion to keep a permanent record of all business transacted by them, including a record of all cases and histories examined into and of all reports and recommendations made by them, and of all orders made and received by them, and annually to report a history of all such transactions to the Governor (or State Board of Control).

SEC. 11. All records of investigations, examinations, reports, recommendations, orders, and personal and family histories made, entered, or secured by the commission are hereby declared to be the property of the state, and shall not be opened to public inspection except upon an order made by a judge of a court of record; provided, however, that all such records may be used for scientific study by the commission.

3. EXPLANATORY COMMENT ON MODEL LAW.

The data recorded in chapter VI.—Working Out of Existing Laws,—and their interpretation in chapter VII.—Criticism of Exist-

ing Laws,—provide the best comment on the model law; the following explanations are simply supplementary to the foregoing studies.

Preamble. In some states the custom of introducing legislative acts by preambles is dying out. However, in the model law, it is thought proper to use this means to set forth in a concise manner the motive of the act, what it seeks to accomplish and the manner of attaining the desired end. Briefly stated, this sterilization law seeks to cut off the lines of descent of persons suffering from incurable hereditary defects. It proposes only to make this law applicable to persons maintained wholly or in part by public expense, thus making doubly sure that the process of sterilization would be applicable only within classes already duly set apart as socially inadequate. It may be argued that persons already duly committed to the custody of the state are subject to such regulations for their personal welfare and for social safety as the state may care to subject them to. In this model law, however, a different point of view is followed; and while eugenical sterilization is in no sense a punishment, just as commitment to a hospital for the insane is in no sense punitive, still sterilization is of such importance both to the individual and to the state that it is deemed wise and just to provide due process of law with the burden of proof of the social menace of possible offspring resting upon the state. It is pointed out that this law is based upon the already demonstrated facts of heredity as factors in social conduct and individual capacity.

Section 1. Some of the existing sterilization statutes provide their executive commissions with official designations, while others do not. Since the duties of such a body are continuous and extensive, it is thought proper to give the commission such an official designation. The membership of the commission is a much more important matter. Most of the existing statutes provide for physicians and surgeons only. This, in the opinion of the committee, is a mistake, inasmuch as the problems which the commission must deal with concern not only medicine but biology also. The problem of human heredity, no less than that of animal heredity, is a biological one. It is thought best to have represented on this commission persons possessing expert knowledge in the three sciences which primarily concern the types of persons which must be dealt with. The work of the commission is largely technical, and it involves a knowledge of the inheritance of natural traits, of diseased condition, and

of mental and physical qualities and conditions. There is therefore provided a commission consisting of a biologist, a psychologist (or psychiatrist), and a pathologist.

SEC. 2. The question may be raised as to the manner of appointment of an eugenics commission, but it seems preferable that responsibility should be centered in the chief executive of the state without the concurrence of any other body. In New York the Governor appoints the commission; in New Jersey the Governor must have the advice of the senate. In some states the whole problem of administering the affairs of the socially unfit is handled by a State Board of Control. It may be wise in such states to vest the appointment of the Eugenics Commission not in the hands of the Governor, but with the State Board of Control. In the first Iowa statute the Board of Parole in conjunction with the institution authorities were the executive agency. In the New Jersey statute the commissioner of the State Board of Charities is an *ex-officio* member of the body. Similarly, in North Dakota the secretary of the State Board of Health is *ex-officio* a member of the executive body. In Wisconsin the appointment of the executive forces and the enforcement of the law are vested in the State Board of Control. In that state it may be stated that the problem is being attacked in a manner which promises eugenical functioning. In states wherein such a board exists, on acount of their especial interest in and knowledge of the problem, it may appear wise to place the appointment and direction of the Eugenics Commission in the hands of the State Board of Control.

A specific provision in reference to the activity of the body is only an extra insurance, but it seems wise in view of dereliction of appointees and executive commissions of several of the states. It seems proper also that the appointive power which is directly responsible for the efficiency of the commission should have the right, at its pleasure, to remove members of the commission.

Some of the laws have been dead letters,—so very "dead" that not even have the required appointments been made. It seems that the statute should require not only the immediate appointment of the eugenical commission, but should provide for its immediate organization and for an early intiation of its duties as contemplated.

The duties of the board are arduous, technical, and extensive. No person, howsoever learned or competent he may be, can per-

form the duties required of a state eugenics commission, if such person does not give his entire time and attention to his duties as a member of such commission; and for their services, therefore, such men should be fairly compensated from state funds not otherwise appropriated. Some of the existing laws are defective in that they require certain compensation to the executive commission to be paid from the maintenance funds of the institution served. Institutions are always jealous of their appropriations from the state, and the policy seems a bad one. In the interests of efficiency, the commission should be paid from funds appropriated directly by the legislature.

One of the principal reasons why officials appointed to enforce the existing sterilization laws have been negligent or derelict is because funds were not provided for salaries and for their other legitimate expenses for carrying out the provision of the statutes. A duty so important to the state and so technical and arduous, should be imposed upon only such persons as the state is willing to compensate fairly. The principle of adequate compensation should be incorporated in the sterilization law itself; and provision for the payment of the commission and for other expenses in executing the law should be provided for in the annual budget of the state. A sterilization law, although just and well designed, is, without an adequate supporting appropriation, destined to be a dead letter. It is the experience of the Eugenics Record Office that on the average the cost of field investigation into the family history of a person in a state institution amounts to practically the same sum as one month's maintenance of such an inmate. This varies in the different states from $15 to $50 for different types of inmates. If the sterilization statute, therefore, requires a thorough study of the family traits of the persons nominated for sterilization, then for such study an appropriation equal to one month's maintenance for all persons to be discharged from the state's custody during the year should be provided.

The following items of distribution of money appropriated for the work demanded of a eugenics commission seems proper to the needs of such a body:

State of.....

Appropriation for the Eugenics Commission for the year ending .....

There is hereby appropriated from the general fund of the state for the maintenance of the Eugenics Commission and in the performance of their duties as contemplated by law (Ref. to statute), for the year ending..... the sum of $.... which shall be available as follows:

Salaries of commission—

Chairman $.....

Other two members $..... each.

In addition to such salaries, the actual traveling expenses not exceeding $..... per annum for the entire commission, incurred while actually engaged in the business of the commission, as contemplated by law, shall be allowed.

For rental for office quarters (if ample accommodations for such cannot be provided in state owned buildings), printing, office supplies and clerical hire $.....

For field studies into the family histories of persons proposed for sterilization $.....

Money honestly spent in such work must be considered as a good investment by the state,—not only from the standpoint of racial welfare, but in dollars and cents,—for a family history can be studied and (if degeneracy be found) due process of law ordering the operation can be had and the operation, itself, performed altogether at a total expense of not greater than one month's maintenance of the subject of the study in the state institution. But weighed further in the balance of dollars and cents the great fact is, that the sterilization of such persons insures the state against having perpetually to care for his or her equally unfit descendants, to say nothing of the economic drag which such individuals entail upon a community. The financial aspect—i. e., the relation of present cost to future immunity from expense,—if social and racial consideration demand the elimination of hereditary defects, should not cause concern. The state should consider the necessary expense of such a policy as it now considers the cost of public education, namely, as a long time but sound financial investment.

SEC. 3. Field studies in human heredity have so advanced that now trained field workers by going into the home territories of certain socially inadequate persons are enabled to secure data upon the analysis of which, students of eugenics are in a measure enabled to

estimate the hereditary potentialities of given individuals. By the model law it is incumbent upon the state to prove potential parenthood of defectives before demanding sterilization, and in most cases such proof can be secured only by first hand field study.

The classes subject to the provisions of this act are those which are not susceptible to eugenical education and moral training, sufficient to cause them voluntarily, from sense of social duty, to refrain from having offspring in the interest of national welfare and vigor. The crippled, the blind, the deaf, and the tubercular are thus not subject to the provisions of this act, because, unlike the classes enumerated in the statute, they are capable of education, and consequently eugenical training rather than enforced sterilization, should apply to them.

A very large percentage of the inmates of the state institutions for the defective are maintained by state expense. Thus on September 30, 1911, in the hospitals for the insane in New York State of the 32,250 inmates 92 per cent. were maintained by the state, 7.25 per cent. were barely self-supporting, while only .75 per cent. were ranked as private patients; and in the licensed private institutions for the insane there were only 1,061 patients. The Michigan statute provides for the application of the sterilization law to persons "adjudged insane or mentally deficient," "maintained wholly or in part by public expense." By limiting the compulsory application of the law to persons duly committed to institutions, and maintained at public expense, and by requiring within this group a thorough mental and physical examination and a careful inquiry into the family history of each particular person subject to the act, a minimum number of errors would be made in enforcing the law. While this committee takes the view that the giving of a final order for an operation of sterilization is far too important a matter to fall within the province of police routine, and should therefore be ordered only as a result of due process of law, still the original investigation, preparatory to a judicial hearing before a court of competent jurisdiction is deemed fully within the province of a non-judicial executive commission.

Pending the growth of an eugenic sentiment in America, it is deemed best to limit the selections for sterilization to the inmates of the state institutions for the socially inadequate. After a few years—possibly so few as ten—of experience with a law such as this

model proposes, it would be safe to extend the application of the law to the whole population. Such an extension would require only a simple amendment to the present proposed statute, for thorough investigation and due process of law would already have been provided. If, however, the existing and the proposed model laws which are limited in this application to the inmates of institutions, should be held by the courts to be "class legislation," such an amendment of extension should be included immediately, in order not to destroy the whole policy of eugenical sterilization.

Since it is proposed to sterilize only potential parents of defectives who are to be returned to society at large, the commission could arrange its work so as to study the hereditary qualities of the persons subject to this act in order of their proposed dates of release from state's custody.

It is obviously impossible in a model statute to name the court which should have jurisdiction in these cases, other than that it should be a state court of record; which court should be specificially designated in the particular statute.

Thirty days are deemed the minimum time required for legal process and the operation provided for by the statute.

SEC. 4. This model statute is designed to insure due process of law in ordering sterilization. It gives to the person nominated for sterilization ample opportunity to be heard by friend and counsel by the court. This particular section is designed to hasten the court procedure and to insure biological and social justice in each case.

SEC. 5. It is deemed proper in this statute to prescribe in detail the procedure from the inauguration of the investigation to the actual operation, in case potential parenthood of defectives is found and an operation is duly ordered; or to the decision that such potential parenthood does not exist in the particular case. The process is simple, direct, and speedy.

By this section it is incumbent upon the Eugenics Commission to present to the court the facts discovered as a result both of their examination of the individual and of their study of his of her family history. Furthermore, it is incumbent upon the state to prove social menace in the potential parenthood of the individual before an operation can be ordered. The provision that the court shall, in case of potential parenthood of defectives be demonstrated, order an operation for sterilization, seems wise, as the court should be concerned

in judging the accuracy and fairness of the commission's recommendation, and not of the wisdom of sterilization as an eugenical measure.

The chain of mandatory features called for by this section, each one dependent upon facts, seems essential in order to make the statute operable. The provisions of safety and humanity are matters, of course, to be vouchsafed by the state. The period of five days intervening between the order and the operation is provided in order to allow ample time for an appeal to be made from the decision of the court. The actual performance of the operation should be a part of the surgical and medical duties of the institution having the particular patient in charge. The matter of compensation of the surgeon should be a matter of administrative detail, and should not be charged to the appropriation for the eugenics commission; nor does it seem necessary to provide a special fund for these charges.

If the process required by this act can be shortened and simplified and still be consistent with justice, and with the fundamental law of the state, such simplification should be had.

The statute seems fair, inasmuch as only potential parents of defectives when about to be released to their own resources are to be sterilized. This is the greatest concession that an efficacious eugenics policy can make to sentiment; eugenics is in perfect accord with the highest humanitarianism—there is no conflict here. If objection be made to sterilization in such cases, then let those who by preventing sterilization in such cases would contaminate the racial quality of the nation, provide for the continued segregation of such cases, under the state's custody; in such cases, the law as outlined would thereupon by its own provisions not be applicable. As it stands the law is simply complementary to the eugenical segregation of the breeding stock of the socially inadequate traits.

SEC. 6. In a matter of such importance to the individual and to the state, an easy method of appeal should be provided for both the attorneys for the commission and those for the person nominated for sterilization. This section is designed to bring this about in a just and speedy manner.

It seems absolutely essential to provide that in case of an appeal, the subject of the particular order shall remain in custody of the state; otherwise the impeding of the legal process until after the discharge of the person from the state's custody might be re-

sorted to in order to evade the enforcement of the act. If the sterilizing operation be vasectomy, it is not at all serious; but if it be castration in the case of males, or any operation in the case of females, it is essential that ample time for convalescence under the hospital care of the state should be allowed. Indeed, there seems to be no danger, as has been suggested, that a person sterilized under the proposed act would not be given ample time for recovery before being discharged. The same rules that govern medical care in relation to discharge from state institutions should, and doubtless would, prevail in cases of sterilization.

SEC. 7. It seems to be undesirable at the present time that there should be inserted in the proposed law, a prohibition regarding the performance of any sterilization operation except as authorized by this particular statute. The statutes of the state concerning criminal surgical operations should provide for any abuse that might accompany the growth of eugenical sterilization. Indeed, in many cases by the consent of, if not at the initiation of, the families of certain defectives, sterilizing operations which certainly resulted in eugenical good have been brought about. The Iowa and the California laws provide for sterilization by the state not only of certain persons in institutions, but also of others not so held in custody, upon their voluntary application. Thus eugenical sterilization by private physicians, in accordance with medical ethics, seems a desirable thing. Nor does it seem wise to provide in this statute for the punishment of officers derelict in enforcing this act, such as the Kansas law provides. Law enforcement in such cases is secured not so much by the punishment of incompetents, as by their removal by vigorous and honest governors and in replacing them by better men.

It does not seem necessary that the actual operation be performed by a member of the commission, in fact, as stated elsewhere, such operations seem most logically to be one of the duties of the surgical staff of the institution wherein the particular person is held in custody. Some of the states err in making the whole subject primarily a surgical task, rather than primarily one of eugenical investigation and only in routine one of surgery.

The state owes it to the individual operated upon that the operation be skillfully and humanely performed; and liability for any such operation performed in accordance with the statute should

not rest upon the surgeon performing the same; such surgeons are simply agents of the state.

SEC. 8. As the institutions for the socially inadequate classes develop in efficiency, they are gradually beginning the study of the family qualities of the inmates committed to their care. The state must encourage any such studies on a state-wide plan, if it hopes to secure the data essential to cutting off its supply of defectives. Such studies require funds since, in eugenics as in all other branches of endeavor, facts cost money. The work has already begun in many places (see Report No. 1, Eugenics Record Office). The accompanying items in the appropriation bills of Minnesota and New Jersey illustrate how the states have inaugurated these studies:

I. Minnesota School for Feeble-Minded and Colony for Epileptics, Faribault, Minnesota.

"Our appropriation for research work was simply an item in the general appropriation bill worded as follows:

'Clinical and scientific work for hospitals for insane, School for Feeble-Minded and penal institutions. Available for year ending July 31st, 1912—$5,000.00.'"

(signed) A. C. ROGERS, Supt.

II. The New Jersey State Hospital at Morris Plains, Greystone Park, New Jersey.

"I have your recent communication relating to legislative provisions made for field workers in eugenics.

"With relation to this institution a supplemental appropriation bill was passed by the New Jersey legislature of 1912, in which was included the following items:

'For research work, twenty-five hundred dollars.'

"The above, of course, relates only to legislation affecting this hospital with regard to eugenics research work."

(signed) B. D. EVANS, Medical Director.

Those instances wherein small sums of money have been appropriated for field studies in eugenics have, in proportion to their amounts, brought in the most valuable returns. Such appropriations should, and doubtless will, be extended in accordance with their real value to the state. The appropriation for the Eugenics Commission and that for the several state institutions to enable them to supply the required facts to the commission should not be con-

fused; the former should be provided as outlined in the comment on section 2 of this chapter; the latter should be provided for in the supply bills for the various institutions for the socially inadequate. Most of such institutions which have thus far carried on these family history studies have been enabled to do so only by dint of great economy on the part of their respective administrators. The state should provide directly for such work. With such support by the state it should be incumbent upon the heads of institutions to co-operate in every way possible with the Eugenics Commission in the execution of their duty; the provisions of this statute are designed to secure such co-operation without jealousy or friction. In so huge a task as the Eugenics Commission has before it, it is absolutely essential that the institutions inaugurate a family history study of their respective charges immediately after the admission of each such person to the institution, in order that data for the commission study may be had at the time contemplated by law, namely, *at least* sixty days before the date set for the release of the particular inmate. Indeed such data should be supplied as early as possible in order to provide for due deliberation and study on the part of the commission; sixty days, however, should be the minimum.

The very fact that it is incumbent upon the managing head of the institution to furnish data at least sixty days before the date set for the discharge of the particular patient, prisoner or inmate would appear to exempt persons committed for a less period of time from the provisions of this act. This seems quite proper, for such a short period of time would not permit the investigation contemplated by law unless the particular person happened to be a member of the family network of some family already studied. Even so, under an advancing system of commitment of defectives and inadequates to institutions, such persons would doubtless before long be committed to longer terms in some state institution. For the year ending September 30, 1912, there had been admitted to the city and district prisons of New York State 103,267 persons—82,764 men and 20,503 women. Should it be proven later on that such persons constitute an hereditary social menace, and that a great portion of them do not, before well advanced in their reproductive periods, come under the custody of the state for periods greater than sixty days, some special provision should be made for them.

Sec. 9. While most of the data for the study of the commission would be provided by the heads of the institutions holding in custody the respective subjects of the investigation, still the commission must extend and verify these family history studies to their own satisfaction, and every possible opportunity should be provided for such work. The commission should therefore be provided with funds (see comment on section 2) for such studies, and should in the interest of truth and justice have the right to summon persons and to administer oaths and to have free access to all court and institution records likely to be of service in such investigations.

Sec. 10. Complete and permanent records of all business and scientific transactions by the commission should be kept not only because such are essential to business economy and to justice, but also because in any far-reaching plan for cutting off the supply of defectives it is necessary that the state build up as rapidly as possible an inventory of its human stock. The existing records of state institutions in general and of sterilized persons in particular are very inadequate to such needs. It therefore seems proper that the Eugenics Commission, which would be a permanent body with permanent files and quarters, be required to preserve all documents likely to be of any service in studying the defective hereditary traits of the state. The commission should also be required to make an annual report—to render an accounting as it were—to the state in general and to the appointive power directly. The lack of such provisions in the existing laws is one of a series of serious handicaps to their value.

Sec. 11. A commission entrusted with such responsibility as that by the proposed statute will find it necessary to study from a scientific viewpoint the cases and family histories that come to its attention; in the interest of a more efficient future administration of the law, such studies should be encouraged.

The provisions that the records of the commission shall not be opened for public inspection, except on an order made by a judge of a court of record, seems highly desirable in order to protect from unnecessary embarrassment and shame the families studied.

The passage of the model law recommended in this chapter, if supported by ample appropriation, and vigorously and competently enforced, will, the committee is confident, inaugurate in any state so undertaking it an eugenical program which, *if* consistently fol-

lowed and supported by all of the remaining states, will in two generations practically cut off the inheritance lines and consequently the further supply of that portion of the human stock now measured by the lowest and most degenerate one-tenth of the total population. This portion of the American breeding stock now constitutes a growing menace to the conservation of our best blood, and consequently to the very foundations of our social welfare. Only those nations of history which have arisen to great effort to achieve a worthy end have long enjoyed a high plane of culture or have left contributions of worth to subsequent peoples. The purging of defective traits from the blood of the American people is worthy of our best efforts.

CHAPTER IX.

CALCULATIONS ON THE WORKING OUT OF THE PROPOSED PROGRAM.

1. TABLE SHOWING THE RATE OF WORKING OUT OF THE PROGRAM.

In the model law of the previous chapter sterilization is designed as an eugenical agency complementary to the segregation of the socially unfit classes and to the control of the immigration of those who carry defective germ-plasm. It is at once evident that, unless this complementary agency is made nation-wide in its application, and is consistently followed by most of the states, it cannot greatly reduce, with the ultimate end of practically cutting off, the great mass of defectiveness now endangering the conservation of our best human stock, and consequently menacing our national efficiency and happiness. The accompanying calculations have been carefully made and, the committee feels, are a fair measure of the number and extent of sterilizing operations necessary for accomplishing the desired end. See chart: Rate of Efficiency of the Segregation and Sterilization Program proposed by the Committee.

2. EXPLANATION AND SUBSTANTIATION OF CALCULATIONS.

From the accompanying chart it is seen that the rate of efficiency of the proposed program is dependent *primarily* upon the length of time required to send to state institutions, regardless of

RATE OF EFFICIENCY OF THE SEGREGATION AND STERILIZATION PROGRAM PROPOSED BY THE COMMITTEE

EFFECTIVENESS OF THE PROGRAM DEPENDS UPON:—

1. The length of time required to send to State institutions—regardless of length of commitments—all of the breeding stock of the varieties sought to eliminate.
2. The sterilization upon release from State custody of all individuals of such varieties possessing reproductive potentialities.

The following table shows the reasonable expectation of the approximate working out of this program—if consistently followed—for eliminating the defective and anti-social varieties from the American population, under the following specific conditions:—

1. That the varieties (*i. e.*, the breeding stock of defectives, including both affected and unaffected individuals of all ages) sought to exterminate now (1915) constitutes 10% of the total population.
2. That those portions of the defective varieties permitted to reproduce, increase at a rate equal to that of the general population, plus 5% each half decade.
3. That the group of State institutions for the socially inadequate, whose inmates by actual count constituted in 1890, .590%; in 1900, .807%, and in 1910, .914% of the total population, provide for and receive inmates at a rate equal to that of the increase of the general population, plus 5% each half decade.
4. That the inmates of institutions continue to be drawn from the two sexes and from each age group in even proportions to the total numbers of individuals of the corresponding sex and age group in the total population of the varieties sought to eliminate.
5. That the average "institution generation" (*i. e.*, average period of commitment) be 5 years.
6. That the Federal Government co-operate with the States to the extent of prohibiting the landing of foreigners of potential parenthood of innate traits lower than the lowest of the better 90% of the blood already established here, *i. e.*, belonging to the varieties of the lower 10% sought to cut off.

TABLE I

1	HALF DECADE ENDING	1915	1920	1925	1930	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985
2	Per cent. of total population constituting the varieties sought to eliminate	10.00	9 70	6 35	8 94	8 46	7 91	7.28	6.57	5 77	4.88	3 88	2 77	1.54	18	-1.32
3	Per cent. of total population in institutions	.800	840	.882	.926	.972	1.021	1 072	1.126	1.185	1.244	1.306	1.371	1.1440	1 512	1.588
4	Probable total population of the U. S.		110,000,000		131,000,000		155,000,000		181,000,000		210,000,000		241,000,000		275,000,000	
5	Probable total numbers in the varieties sought to eliminate if program is carried out		10,670,000		11,711,400		12,260,500		11,891,700		10,248,000		6,675,700		495,000	
6	Total number of inmates in institutions called for by proposed program		924,000		1,213,060		1,582,550		2,038,060		2,612,400		3,304,110		4,158,000	
7	Number of sterilization operations required per year per 100,000 population	80.0	84 0	88 2	92 6	97.2	102.1	107.2	112 6	118.5	124 4	130 6	137.1	144.0	151.2	158.8
6	Probable total number of sterilizing operations required per year for the entire population		62,400		121,306		158,255		203,806		260,400		330,170		415,500	

HOW CALCULATED —Rank 1, Dates Rank 2, Per cent. at previous date, plus 5% of such per cent., minus institution population for period. Rank 3, Per cent. at previous period plus 5% of such per cent. Rank 4, estimated by W. J. McGee in 1911. Rank 5, item of Rank 2, times that of Rank 4. Rank 6, item of Rank 3, times that of Rank 4. Rank 7, based upon the sterilization of one-half of the total number of persons committed to institutions, the other half being either (a) past the reproductive age, or (b) naturally or pathogenically sterile, or (c) sterilized upon release from previous commitments, or (d) capable of eugenical education, or (e) not belonging to defective strains, or (f) dying while still in the custody of the State Rank 8, item of Rank 7, times that of Rank 4, divided by 100,000.

TABLE II (BASED ON TABLE I)

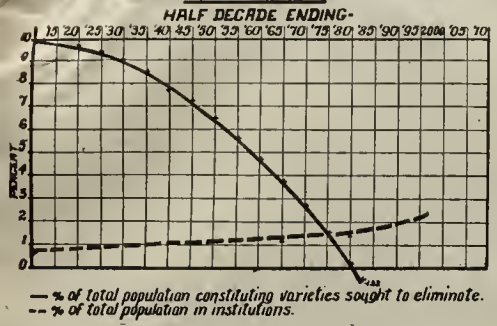


TABLE III (BASED ON TABLE I)

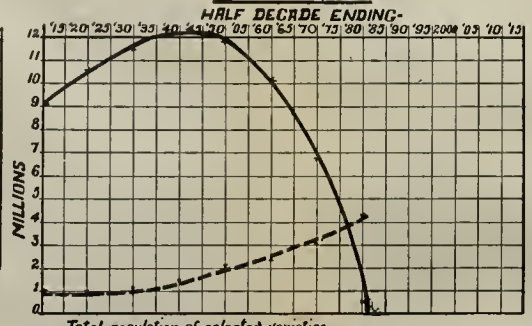
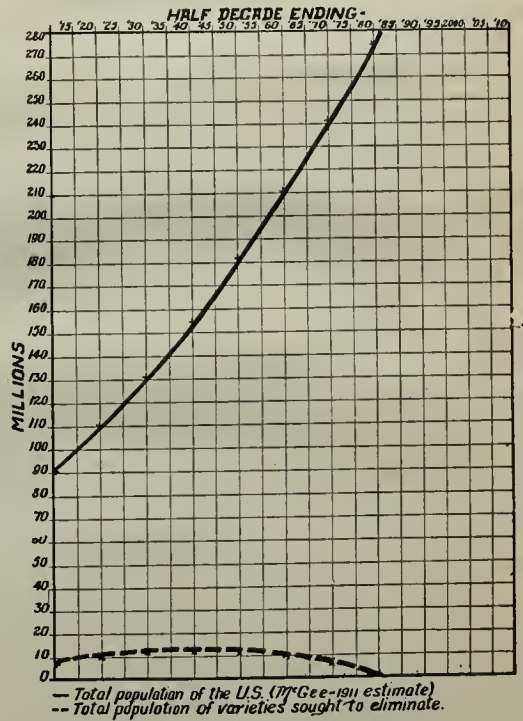


TABLE IV (BASED ON TABLE I)



NOTE—The estimate for population increased (Rank 4) does not take into consideration the effects of the proposed segregation and sterilization program herewith outlined; the effect of which would be to decrease the total somewhat. Estimating future population is at best an uncertainty. The calculations involved in this table are based upon percentages, and the program will work out the same whether the population increases rapidly or slowly. However, following McGee's estimate, which is median between the extremes recently made by demographers, it is probable that during the interval between the present and 1985 between 350,000,000 and 400,000,000 persons will be born in the United States; should such be the case and should our institutions follow their present trend of development, approximately 30,000,000 of these persons will come under custodial care of the several States. Under the present estimate it would be necessary to sterilize during this period approximately 15,000,000 persons—beginning with 92,400 per year in 1915 and increasing to 415,000 per year by 1980.

length of commitment periods, the potential parents of the varieties sought to eliminate. The following factors determine this period of time:

a The portion of the population which it is sought to cut off.

The extirpation of hereditary defectiveness under the proposed program is dependent upon the growth, development and use of our institutions for the socially inadequate. In these calculations it is assumed that the lowest ten per cent. of the human stock are so meagrely endowed by nature that their perpetuation would constitute a social menace. The manner of arriving at this estimate is described in the introduction of Part I of these studies. Briefly it is as follows:

In 1910 .914 per cent. of our total population were inmates of the institutions for the socially inadequate. Their average period of custody or commitment was less than five years (see table VI.); then, after allowing for the cases of multiple commitments (see table VIII.), the total number of living persons who have been legally committed to institutions must be represented by several times this per cent. Besides this portion of the total population, there is another portion who are equipped with equally meagre natural endowments, but who have never been committed to institutions. In addition to this body of persons, there is another group of persons who, though themselves normal, constitute a breeding stock which continually produces defectives; they are so interwoven in kinship with the lower levels that they are totally unfitted for parenthood. The assumed ten per cent., or to use a current expression, "the submerged tenth," appears for the purpose of this study to be a fair estimate of the extent of the body of degeneracy which the American people can now, in the interests of social betterment, well seek to cut off. The primary or basal factor namely, the commitment of all of the members of the socially inadequate strains to institutions is in turn dependent upon several component factors, the first of which is the differential birth rate of the submerged tenth compared with that of the normal and super-normal nine-tenths.

b. Differential Birth Rate.

In these calculations the lowest tenth are given a birth rate greater by five per cent. each half decade than that of the general

population. This factor is included in these calculations in deference to prevailing opinion, that, generally, defective and inferior human stock reproduce more rapidly than our better strains. The following table shows the result of a preliminary study of this field:

TABLE V

FECUNDITY AND INFANT MORTALITY DIFFERENTIAL BETWEEN NORMAL AND SUB-NORMAL FAMILIES

	NORMAL FAMILIES	SUB-NORMAL FAMILIES
Number of matings	701	1,054
Total number of children	3227	4,640
Average number of children per family	4.6	4.4
Infant mortality—		
Male	131	463
Female	109	237
Sex unknown	27	106
Total	267	806
Percentage Infant Mortality	8.3	17.4

The normal families recorded on this table are those of American professional and business men; the sub-normal families are each represented by one or more members in one or more institutions for the insane, epileptic, feeble-minded, or criminalistic classes. Although the numbers are small, the families were selected in serial order, without regard to fecundity. While not conclusive, this special study points toward a small differential fecundity in favor of the normal families over defectives, rather than the reverse as is generally held. Incidentally, there is a more definite differential infant mortality, working by natural process to reduce the defective population. The estimate then of the differential fecundity of 5 per cent., each half decade, for the "submerged tenth" seems certainly to cover the actual rate of increase of this class. It is clear that such an estimate tends, in these calculations, to delay the consummation sought by the program; the object of estimating so great a fecundity of defectives is to insure conservatism in the calculations. However, further investigation based upon first-hand materials, is needed to determine the facts of differential fecundity.

c. Future Growth of Institutions for the Socially Inadequate.

These calculations provide that there shall be an increase in the capacity of state institutions for the anti-social classes, not only absolutely but also in relation to the increasing total population. The rate of increase used in the calculations is equal to that of the total population plus 5 per cent. each half decade. This is approximately one-third the rate of increase for the decade 1890-1900, and three-fourths the increase for the decade 1900-1910. This proportion is based upon the fact that in 1890, .590 per cent.; in 1900, .807 per cent., and in 1910 .914 per cent. of our total population were in institutions. This is an increase of 37 per cent. per 100,000 population for the decade 1890-1900, and 13 per cent. for the decade 1900-1910.

That there is clearly a movement toward increasing, both absolutely and relative to the total population, the facilities for caring for such classes, is seen by the data just given. The increase for the last decade is not so great relatively as that of the preceding decade; but the increase is still differential in respect to the growth of population. Accompanying this numerical growth there is a refinement of social ideals, and legal processes governing the commitment of the anti-social to state institutions; as well as a better understanding of the cause and nature of their shortcomings.

d. Sex and Age of Persons Committed to State Custody.

Another determining factor in these calculations is the sex and average age of persons committed to state custody. The correctness of these calculations in measuring the possibility of achieving the desired end is dependent upon the selection of individuals for commitment to institutions, from all ages and from both sexes, in proportion to the total numbers of each age and sex in the general population. Should the commitment to institutions be deferred until after the reproductive period, then the segregation and sterilization program would be useless as an agency for reducing the anti-social strains. If, however, the commitment is made early in or before the reproductive period, then the recommended program will function as intended.

The report of the State Commission of Prisons for New York for 1912 shows that for the year ending September 30, 1912, the maximum number of commitments to the state prisons was reached

in the age group of 24 years. For the year ending September 30, 1911, the report of the New York State Commission in Lunacy shows that for the insane the maximum number of commitments of native-born persons, to the State Hospitals was reached at the age group 35-39 years. This group represented 11.7 per cent. of the total native-born first admissions, while at ages younger than this, were represented by 39.6 per cent. of the total of such admissions. For the foreign-born the same maximum was reached in the age group 25-29 years, with 15.2 per cent. of the total of such admissions during earlier years.

In response to a special inquiry sent out by the committee in the spring of 1913, data were secured from which the following table has been compiled:—

TABLE VI

Type of Institution	Number of Institutions Reporting	Average Age of Persons Committed in 1912	Average Age of Persons Discharged in 1912	Average Length of Commitment of Persons Discharged in 1912
Hospitals for the Insane	55	34.70 years	38.30 years	5.33 years
Reformitories and Industrial Homes	24	16.88 years	19.32 years	2.39 years
Prisons and Penitentaries	8	32.21 years	32.28 years	2.64 years
Institutions for the Blind	8	11.40 years	18.17 years	9.00 years
Institutions for the Deaf	8	8.87 years	17.02 years	9.20 years
Institutions for Epileptics	5	24.85 years	29.23 years	2.19 years
Institutions for the Feebleminded	17	17.98 years	20.54 years	4.74 years
Institutions for the Feebleminded and Epileptic	5	16.92 years	20.27 years	5.13 years

In the report of the State Commission in Lunacy for California, June 30, 1912, Dr. F. W. Hatch, the General Superintendent of State Hospitals, reports the ages of persons operated upon, as follows:—

TABLE VII

Persons Sterilized Under the California Statute

Ages of Those Operated Upon	Male	Female	Total
1 to 10 years	1	0	1
15 to 19 years	24	15	39
20 to 24 years	33	25	58
25 to 29 years	33	28	61
30 to 34 years	17	28	45
35 to 39 years	22	12	34
40 to 44 years	9	3	12
45 to 49 years	3	1	4
50 to 54 years	1	0	1
55 to 60 years	1	0	1
	144	112	256
Unknown	6	6	12
Totals	150	118	268

Civil Condition	Male	Female	Total
Single	105	46	151
Married	21	61	82
Divorced or widowed	5	6	11
Unknown	19	5	24
Totals	150	118	268

From table VI it is apparent that at present the socially inadequate are being committed to institutions at an age early in their reproductive periods; early enough, it is clear, to forestall the birth of a large percentage of the offspring who would normally be born to these persons, and from table VII it is equally clear that in practice the California operations have, as a rule, been had early enough to be in a large measure eugenically effective, if the persons operated upon carried defective qualities; but, even here it is evident that the age limit must be lowered, if the greatest eugenical good is to accrue from such measures. The civil condition is not

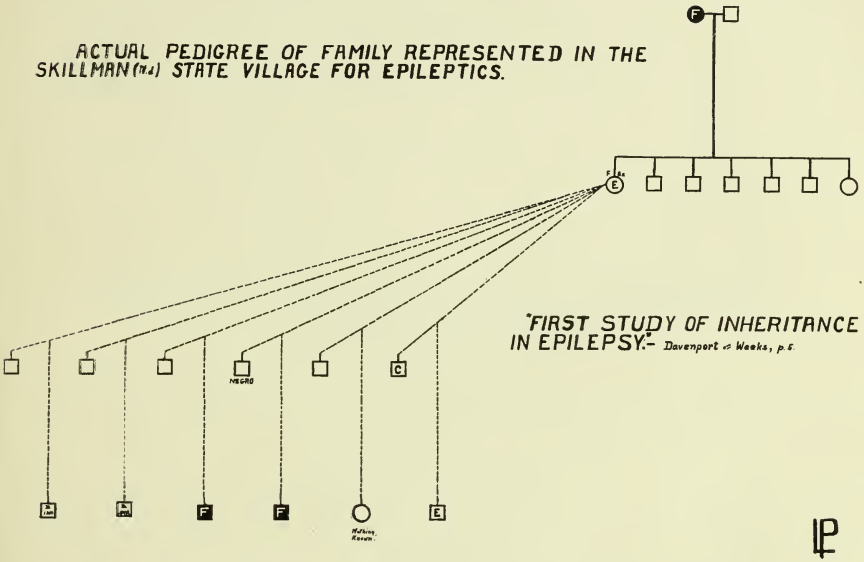
so important, for among the anti-social classes illegitimacy runs high. If the future tendency should be toward earlier commitments—and it is apparent that such is the case—then the cutting off process would be hastened.

The sex of the persons sterilized is an important eugenical factor, for it is evident that with the lower strains of humanity, among whom illegitimacy is high, it will be necessary to sterilize degenerate women in numbers in fair proportion to the number of males sterilized. This fact has its biological analogy as follows:—

In the breeding of the higher and more valuable types of domestic animals, such as horses and cattle, sterilization of surplus males is one custom universally practiced. The females of these animals are well cared for and protected from free union with the males; here selected matings are the rule. However, in the case of domestic animals of less value, having mongrel and homeless strains and individuals, such as the dog and the cat, the cutting off of their supply is largely effected through the destruction or the unsexing of the females. As a rule the tax on a female dog is two or three times greater than that on a male dog; such difference in taxation is not made because of a difference in individual menace, but rather because of a more *direct* responsibility for reproduction. The females of such homeless strains are not protected, and consequently they increase very rapidly; consorting freely with equally worthless mates, their progeny are often excessive in numbers, and of a worthless, mongrel sort. The castration of one-half of the mongrel male dogs would not effect a substantial reduction in the number of mongrel pups born.

The unprotected females of the socially unfit classes bear, in human society, a place comparable to that of the females of mongrel strains of domestic animals. As a case in point, the accompanying pedigree from "A First Study of Inheritance in Epilepsy" by Davenport and Weeks, illustrates the manner of the increase of defective children by defective women. This actual family record is an example of the type of pedigree which was so common in the family histories studied by Davenport and Weeks, that they gave it a name,—"the almshouse type,"—a sad commentary on the general inefficiency of such institutions.

POORHOUSE TYPE OF SOURCE OF DEFECTIVES.

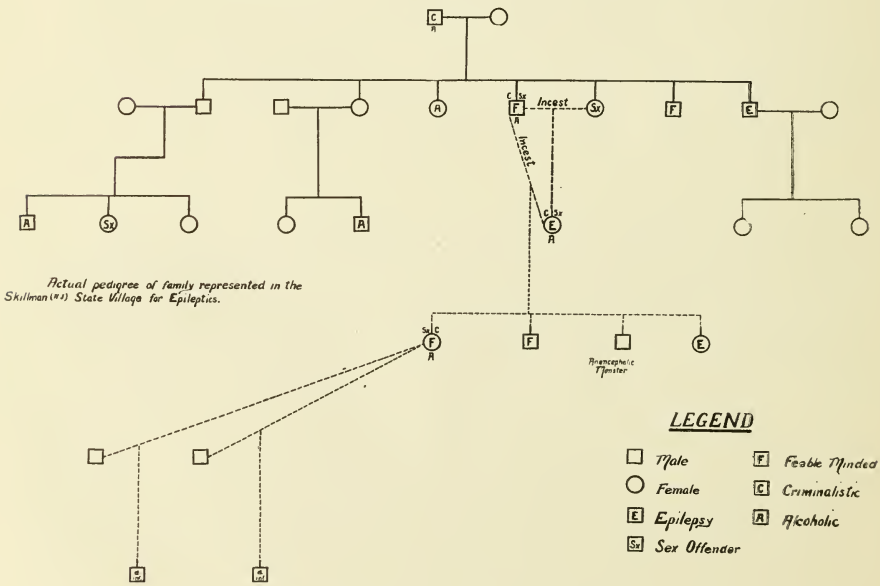


The central figure is a feeble-minded woman subject to epileptic fits, descended from a feeble-minded mother and shiftless, worthless father. She has spent most of her life in the almshouse, and all of her children have been inmates. One is by a negro, whom she met in the almshouse. Two of the children died in infancy; one, of whom little is known, died at the age of eighteen. Of the remainder, two are feeble-minded, and one, from a sire of criminal tendencies, is an epileptic imbecile.

On September 30, 1912, New York State Prisons held in custody 14,791 persons, of this number, 1,887 were women and 12,904 were men. With the criminalistic the method of reaching the women of such strains becomes very difficult. With the insane, however, the problem is much more evenly balanced. On September 30, 1911, the New York State Hospitals for the Insane held in custody a total of 33,311 persons, 16,010 men and 17,301 women.

There is another type of pedigree by Davenport and Weeks which the same study brought to light—"the hovel type." In such families incest is rife. The accompanying pedigree of this type shows a condition wherein the sterilization of both the male and the female would have been desirable, for, with an equal lack of sex control in both of them, it is likely that, if the unions specified in the pedigree had not been made, both male and female would have found consorts elsewhere and would thus have perpetuated their unworthy stock.

HOVEL TYPE OF SOURCE OF DEFECTIVES.



It is thus clear that in the application of the program of eugenical sterilization no difference should be made between the male and female—hereditary unfitness alone should be the criterion.

e. Average Period of Commitment.

The average period of commitment is assumed, in these estimates, to be five years. From the examination of table VI, one is convinced that it is certainly not greater than this term of years. The long estimate used in these calculations will doubtless cover the cases wherein sterilized persons would be returned to the state's custody. From the report of the New York State Commission of Prisons for 1912, the following table is secured:

TABLE VIII

FOUR MEN'S PRISONS. NUMBER OF TIMES PRISONERS ADMITTED DURING THE YEAR ENDING SEPTEMBER 30, 1912, HAVE BEEN COMMITTED TO PRISON

A		B	
TO PRISON NOW (1912) DETAINING THEM		NUMBER OF TIMES CONFINED IN OTHER PENAL INSTITUTIONS	
First time	3,075	Prisons	737
Second time	237	Penitentiaries	887
Third time	55	Reformatories	1,002
Fourth time and over	23	Refuges	269
Total	3,390	Jails	566
		Miscellaneous institutions	212
		Total	3,673

From this table it is apparent that the reformatories have at some time in the previous career of the inmates of the prisons had custody of a large percentage of them. This is an eugenical advantage for their inborn qualities would, under the policy outlined, have been determined before their reproductive periods began.

For the year ending September 30, 1911, of the total of 7,867 admissions to the hospitals for the insane of New York State, 1,639 were readmissions.

Under the program, the shorter the periods of commitment, the more rapidly will the whole body of individuals possessing hereditary potentialities for defective parenthood be sent sent through institutions; and if the program were carried out as contemplated by the model law, their blood lines would be cut off the more rapidly. There are, however, many reformatory and other social considerations which must, of course, determine the length of commitment. Sterilization is simply an insurance when segregation ceases.

f. Control of Immigration.

As a final factor, the federal government must coöperate with the states to the extent of excluding from America immigrants who are potential parents and who are by nature endowed with traits of less value than the better ninety per cent. of our existing breeding stock. According to the census of 1910 the native-born population of New York constituted 70.1 per cent. and the foreign-born constituted 29.9 per cent. of the total population of the state. To the state hospital for the insane the native-born element contributed 51.28 per cent. and the foreign-born 48.02 per cent. (.70 per cent. unascertained) of the total admissions for the year ending September 30, 1911. The foreign-born element thus contributed to the New York hospitals for the insane at the rate of 2.019 times that of the native-born population. To the state prisons of New York the native-born element contributed 65.8 per cent., and the foreign-born 34.2 per cent. of the total admissions in the year ending September 30, 1912. For the state prisons, therefore, the foreign-born element contributed admissions at a rate 1.21 times greater than did the native-born population.

The federal government, which has control of immigration, owes it not only to New York State on social and economic grounds, but to the American people on biological grounds to exclude from the country this degenerate breeding stock.

Adequate data, upon which such differential exclusion could be based, can be secured only by investigating the traits of immigrant families in their native towns and villages, by sending trained field workers to such places. In view of the fact that the germ-plasm of

a nation is always its greatest asset, and that the expense of such measures would be paying investments,—not only in dollars and cents, but in the inborn qualities of future generations—the task should be undertaken. At a cost not at all prohibitive, a large majority of this degeneracy could be detected. Every nation has its own eugenical problems, and in the absence of a world-wide eugenical policy, every nation must protect its own innate capacities. From the viewpoint of eugenics, differential immigration is not directly a matter of nationality nor of race, but is rather one of family traits compatible with good citizenship.

9. General Considerations; Probable Number of Operations Required.

These calculations are based upon the sterilization of one-half of the socially inadequate persons legally committed to the custody of the state, relying upon the other half being (a) past the reproductive age, or (b) congenitally or pathogenically sterile, or (c) sterilized upon release from some previous commitment, or (d) susceptible to educational influences deterring them from reproducing, or (e) not carriers of a defective germ-plasm, or (f) dying while still in custody of the state. There are therefore excluded from liability to sterilization the inmates and patients of hospitals and institutions for such classes as the tubercular, the crippled, the blind and the deaf, in cases wherein such persons are not also mentally defective or anti-social as well as simply inadequate personally as useful members of society.

For such classes eugenical education, humanitarian aid, restrictive marriage laws and customs, and possibly, in certain cases, voluntary rather than enforced sterilization appear to be the proper eugenical remedies.

During the year ending September 30, 1912, there were discharged from the state hospitals for the insane of New York 3,796 persons, while 2,886 died while still in the custody of the state.

Education, legal restriction, segregation, sterilization—these four eugenical agencies are of primary remedial value. If the first fail, apply the second; if it also fail, apply the third; if segregation ceases and the first two factors do not deter from parenthood the potential parent of inadequates, apply the fourth. Purify the breeding stock of the race at all costs.

Of all the defective classes subject to this program, the feeble-minded strains would by the consistent application of such a program die out most rapidly since their defects are either congenital or appear relatively early in life. The decimation of the cacaesthetic, the deformed, the epileptic, the criminalistic and the insane strains would follow probably in order named.

Dr. F. W. Hatch, who supplied the data for table VII., reports also the data for the following table:—

TABLE IX

LEGAL STERILIZING OPERATIONS IN CALIFORNIA

TYPES OF PERSONS STERILIZED	MALE	FEMALE	TOTAL
Dementia praecox	34	18	52
Manic depressive	45	61	106
Alcoholic psychosis	22	1	23
Epilepsy	12	10	22
Imbecility	20	12	32
Confusional and other forms	10	6	16
Paranoia	3	0	3
Unclassified	4	10	14
Total number of persons sterilized up to June 30, 1912	150	118	268

From the table it is seen that 20 per cent. of the operations were performed on imbeciles or epileptics, and practically all of the remainder on insane persons. The ratio of the number of feeble-minded to the number of insane in institutions is approximately 1 to 10. The California ratio is in keeping with expectation, and therefore appears to form a fair basis for estimating the future ratio of *aments* and *dements,* who would be sterilized under a eugenical sterilization law.

Regardless of the time when such a policy is put into effect, if the program outlined works out as calculated,—namely, cuts off the lowest one-tenth of the total population, it would require initial sterilization at the rate of 80 persons per year per 100,000 total population, increasing to approximately 150 per year per 100,000 total population at the end of two generations. If the work should be begun during the present decade, it would, in acordance with conservative

estimates of future population, require the sterilization of approximately fifteen million (15,000,000) persons during this interval. At the end of the time we would have cut off the inheritance of the present "submerged tenth," and would begin the second period of still more eugenically effective decimal elimination. The infinite tangle of germ-plasm continually making new combinations will make such a policy of decimal elimination perpetually of value. Although the present lowest levels, as we know them, may have disappeared, still it will always be desirable to purge the existing stock of its lowest strains. According to Darwin,

> When in any nation the standard of intellect and the number of intellectual men have increased, we may expect from the law of the deviation from the average that prodigies of genius will appear somewhat more frequently than before.

As a logical corollary to this, we should expect the fortune of recombination of ancestral elements to produce fewer human "culls."

The conservative sterilization program, beginning with only a few operations, applying only to those most patently degenerate, will allow in time for the segregation, in the complex network of national heredity, of a larger portion of the good from the bad traits, making possible the salvage of a great portion of good that is now associated in the same individual with the most unworthy qualities. It is even urged against eugenics that, if sterilization or other eugenical elimination had been the rule, so and so would not have been born. Perhaps so, but would not other personalities,—one or perhaps many—of equal or better natural endowment have appeared in his or her place?

The present experimental sterilization laws have been pioneers—pointing the way—and as such they are to be commended, but as remedies for social deterioration they have not thus far, in a national way, functioned. Indeed less than 1,000 sterilizing operations have been performed under the immediate provisions or even under the shadow of the twelve statutes. With this in view, the rate of sterilization required seems high, but, unless the people of the several states are willing to attack the problem in its entirety, they cannot hope to find in sterilization, as complementing segregation, anything more than a slight palliative for the present condition from which we are seeking relief. A halfway measure will never strike deeply at the roots of the evil. In animal breeding when any great results are wrought, or when new and superior breeds are made

within a few generations, it is the selected one per cent. or at most the tenth part that are selected for reproduction rather than the upper ninety-odd per cent. which this conservative program calls for. But since segregation and sterilization seek not to make over the upper levels of the race, nor to establish new and better human strains—these are the tasks for constructive eugenics during the long indefinite future,—but simply to cut off the most worthless one-tenth, the rate of sterilization required seems sufficient.

The recommended program would give ample opportunity for beginning on a very conservative scale. No mistakes need be made; for at first only the very lowest would be selected for sterilization, and their selection would be based upon the study of their personal and family histories, and the individual so selected must first be proven to be the carrier of hereditary traits of a low and menacing order. As time passes, and the science of eugenics becomes more exact, and a corps of experts, competent to judge hereditary qualities, are developed, and public opinion rallies to the support of the measures, a larger percentage could, with equal safety, be cut off each year. While the cutting off of personalities of as little worth as our present lowest one-tenth will take two generations, still some benefits would begin to accrue almost immediately after the inauguration of the policy. It would, of course, be possible to cut off a large portion of our lowest levels at one fell swoop, but the dangers, the difficulties—both practical and scientific—and the injustice involved would be insuperable. No one advocates such a plan, but a policy of small beginning and conservative development seems wise.

Unless all of the states co-operate in the purging of the blood of the American people of its bad strains, and their co-operation is supported by the federal government in respect to immigration, as indicated in the calculations, we should not expect the program to work out as calculated. The federal government must, at some future time, undertake an inquiry in the home countries of prospective immigrants, concerning their hereditary traits. Such a program, nation-wide in extent, is possible only when the public becomes convinced that it is possible to judge of the hereditary potentialities of a given individual, and that in enforcing the experimental laws already on the statute books scientific truths were being applied in an unerring and humane manner.

There is in this program nothing from a financial point of view to hinder its immediate inauguration, as outlined, by all of the states. Indeed, the expense per capita to the people of the state for the care of these socially inadequate of the present lowest levels would decline rapidly. By painstaking analysis of state references, the following table has been worked out.

TABLE X

STATE EXPENDITURES FOR THE SOCIALLY INADEQUATE: PER CENT. OF TOTAL STATE EXPENDITURES DEVOTED TO INSTITUTIONS FOR THE SOCIALLY INADEQUATE

DATE	CONNECTICUT	MASSACHUSETTS	WEST VIRGINIA	VIRGINIA
1891	21.5%	23.9%	23.6%	27.4%
1892	.....	25.7%	27.6%	25.3%
1893	19.7%	26.9%	22.6%	22.6%
1894	25.5%	26.9%	24.8%	24.4%
1895	24.4%	23.9%	26.6%	25.2%
1896	24.7%	23.8%	27.2%	25.3%
1897	25.3%	22.7%	27.9%	25.0%
1898	25.5%	23.9%	27.0%	23.8%
1899	23.5%	21.2%	28.4%	22.3%
1900	38.1%	21.0%	27.6%	22.7%
Total for decade	24.7%	23.7%	26.4%	24.3%
Cost to the people per capita for the decade	$23.28	$23.84	$16.06	$17.76
1901	24.7%	30.3%	25.3%	21.8%
1902	26.8%	28.7%	24.8%	22.5%
1903	20.9%	27.3%	27.4%	22.4%
1904	23.4%	37.2%	26.1%	21.2%
1905	20.6%	36.1%	21.2%	19.6%
1906	29.6%	37.6%	18.4%	18.4%
1907	23.2%	36.4%	14.7%	19.3%
1908	23.4%	34.9%	13.1%	19.6%
1909	16.2%	38.3%	11.6%	19.1%
1910	18.9%	37.1%	15.0%	19.4%
Total for decade	22.0%	35.0%	17.7%	20.1%
Cost to the people per capita for the decade	$34.68	$29.54	$26.95	$23.27

This table, which the committee hopes to be able to extend so as to include data for all of the states, shows the movement in state expenditures for institutions for the socially unfit. In order to keep this growth of expenditure from overwhelming and bankrupting out state governments, it behooves the several states to provide more ample opportunity for the managers of their institutions to work out the industrial and farming systems, whereby the inhabitants of their institutions may not only be happier, healthier, and better trained than at present, but will also contribute more largely to their own welfare and maintenance. Our institutions for the socially dependent are more nearly approaching hospitals and vocational schools in their equipment and management, and less and less have the appearance and real character of jails and dungeons. Any money, moreover, that the state invests in such modern plants will not be wasted, for, when the anti-social classes as we now know them diminish in number, the lower tenth will always need vocational training such as these changed institutions could so well provide, and the cost of such training like all expenditure for fitting education would be a national investment rather than a dead expense or a tribute to degeneracy.

Moreover the increasing fitness to their purposes should actually, and does appear to so govern the evolution of our state institutions for the socially inadequate. It is not, therefore, to be presumed that a state would develop its institutions and its sterilization policy at a constantly increasing rate, all for the purpose of bringing the program of decimal elimination and consequently the usefulness of most of the costly institutions to a sudden end, the former result as indicated by tables I., II., III. and IV. of the inserted chart. These calculations demonstrate simply the possibility of achieving such a program of elimination, but the program itself is subject to change and betterment. For instance, long before the end of two generations the eugenics commissions of the several states should, and doubtless will, be authorized and directed by law to extend their investigations and their selections for sterilization to the population at large. The end sought, namely, the cutting off of the lines of descent of the present lowest one-tenth of our existing population could, by such an extension, be accomplished without the accompanying institutional growth which the indefinite continuation of the present initial policy calls for; not only is this true,

but in addition the contemplated end would be brought about more rapidly. Such an extension of authority to the whole population should, however, in the opinion of the committee, be postponed for a term of years, ten possibly, thereby permitting the growth of eugenical knowledge and sentiment among the people, the education of a corps of experts in human heredity, and the building up of an inventory by the state of its cacogenic human stock.

There is one contingency by which the authority of the eugenics commission would have to be extended to the whole population at an earlier date. This contingency consists in the possibility that the Supreme Court of the United States might, in case the constitutionality of one of the existing sterilization laws is tested before that body, decide that the application of sterilization only to inmates of the institutions constitutes a breach of the Fourteenth Amendment to the Federal Constitution, which provides that none of the states shall "deny to any person within its jurisdiction the equal protection of the laws." In the light of the legal opinions presented in this report, it is not believed that the Supreme Court would hand down such a decision, and in the interest of sound eugenical progress it is hoped that it will not be necessary to extend the authority of the eugenics commission to the whole population immediately, howsoever desirable such an extension would be in the future. The immediate limitation of the law to the inmates of institutions is solely in the interests of justice and unerring application, and should not therefore be deemed discriminatory.

Attention is directed toward an interesting phenomenon of tables I., II., III., and IV. of the Rate of Efficiency chart of this chapter. The striking feature in the working out of the suggested policy consists in the fact that absolutely the numbers within the socially inadequate classes would increase for a few years, after which, by the constant application of the same policy, the decline would come very rapidly. Such phenomena are common with practically all things that change by the application of persevering forces—business ventures, institutional growth, the working out of governmental policy, the trajectories of missiles, military campaigns, the ravages of a plague, the ontogenesis of an individual, and the rise and decline of plant and animal species—all experience strenuous struggle in overcoming initial inertia or resistance; finally

the movement is accelerated, and, gathering momentum, the passing by a given point, a culmination or fruition, or an extinction as the case may be, is achieved at a relatively great speed.

h. Conclusion.

The data for these calculations have been carefully compiled, and the estimate for each of the factors is made on the conservative side—in each case tending to delay the culmination. The arithmetic is correct; if one accepts the conditions, he must accept the conclusion also. If it is held that the bases for the calculations are too optimistically chosen, then it is necessary only to extend the time of culmination; the essential thing is, that such an end is possible in consonance with modern humanitarian ideals and reasonable social endeavor. However, for the reasons enumerated in this chapter, the committee believes that the time allotted—namely, two generations—is ample for cutting off the inheritance lines of the major portion of the most worthless one-tenth of our present population, *if* the recommended program be consistently followed. It is clearly within the power of the American people and not at too great a cost in money and effort to forestall the continuation of the great mass of defectiveness from which we now suffer. The committee believes also that this end can be accomplished conservatively, beginning on a small scale and keeping pace with institutional growth and scientific study; and above all, that it can be accomplished in a lawful, just and humane manner without detriment to, but, on the contrary, to the great advancement of, national welfare.

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BULLETIN No. 11

Reply to the Criticism of Recent American Work by Dr. Heron of the Galton Laboratory

BY

C. B. DAVENPORT AND A. J. ROSANOFF

A Discussion of the Methods and Results of Dr. Heron's Critique

BY

C. B. DAVENPORT

Mendelism and Neuropathic Heredity

A Reply to Some of Dr. David Heron's Criticisms of Recent American Work

BY

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A DISCUSSION OF THE METHODS AND RESULTS OF DR. HERON'S CRITIQUE.

By C. B. DAVENPORT.

This paper is a reply to "A Criticism of Recent American Work" by Dr. David Heron, of the Department of Applied Statistics, University College, London. In printing this reply I am led to make an exception to a rule I have followed of not "answering" criticism, except by additional investigations. Such additional investigations of the matters criticized are, indeed, under way in the regular course of our work; but, as we shall see, they are not strictly called for by the nature of the criticism we are considering, which is only, to a very slight extent, a criticism, either of fact or conclusions. I make the reply because the "criticism" is of a grossly striking character, has been broadly circulated and is calculated to do harm with those not in possession of all the facts.

First of all, as stated, we have here hardly to do with a scientific criticism, either in form or aim. The term *stricture* would better apply, since the animus is clearly destructive. Says the author (p. 5): "We propose to confine our criticisms to certain American work which has been welcomed in this country as of first-class importance, but the teaching of which we hold to be fallacious and indeed actually dangerous to social welfare. We have selected this rounded group of papers because they deal with a very pressing subject, that of mental defect, and in our opinion form a very apt illustration of the points just referred to; *i. e.*, careless presentation of data, inaccurate methods of analysis, irresponsible expression of conclusions, and rapid change of opinion." In summing up, in his final paragraph, the author concludes "that the material (of the Eugenics Record Office publications) has been collected in a most unsatisfactory manner, that the data have been tabled in a most slipshod fashion, and that the Mendelian conclusions drawn have no justification whatever ..... Why, we shall again be asked, does the Galton Laboratory waste its energies on destructive criticism?"

The points enumerated in these two parts of Heron's paper are then:

1. Most unsatisfactory method of collecting material.

2. Careless presentation of the data, including, specifically, tabulating the data in a most slipshod fashion.

3. Irresponsible expression of conclusion, and, specifically, drawing Mendelian conclusions that have no justification whatever.

4. Rapid change of opinion.

In discussing the strictures of Heron, (A) I am much embarrassed by the personal nature of the attack, (B) I shall, nevertheless, consider the four points tabulated above and (C) I shall briefly consider the probable basis of the desire, which must be patent to all students of genetic literature, of the biometricians to attack biological studies of genetics.

A. The Personal Elements Involved in Heron's Strictures.

Respecting myself, it is clear that Heron regards it important to show that I am really unable, through the absence of many of the most essential traits of a man of science, to do good scientific work. Thus, on page 38, he says: "We are not prepared to dissent from the view that the citation of a pedigree by Dr. Davenport is a disqualification for its further use." Page 57, "here, as is not unusual with Dr. Davenport, his conclusions can be refuted from his own data." Page 49, "No reliance whatsoever can be placed on any statement as to alcoholism made by these authors." Page 59. "It is somewhat unfortunate that in all these publications dealing with the inheritance of mental defect, Dr. Davenport and his collaborators are obliged to exercise a considerable amount of ingenuity in getting rid of the rather frequent exceptions to the rules they so confidently lay down." And the innuendoes that data are selected for conclusions and exceptional cases are repressed (e. g., pages 14, 19, 46) and similar suggestions are frequent.

Now it is undoubtedly true that in scientific investigation, as in exploration, the credence to be given to any report must, at the beginning, depend largely upon the impression of accuracy, capacity for analysis and love of truth of the scientific worker. And

any man of science who is working in a field and gaining results which, for the sake of the advancement of science, ought to be known promptly, is gratified to have his findings receive a serious examination and provisional acceptance, such as is, properly, not afforded to the charlatan, the untrained worker or the unbalanced mind. To shake the faith of his colleagues in a scientific man is the most effective way (for the moment) of minimizing the influence of a man and is much less laborious than refuting conclusions by facts.

Right here, I may state, that my reputation I regard as of infinitely less importance than the acquisition of truth; and if I resent these evil innuendoes it is not for myself at all, but only for the protection of the scientific interests which I am, for the time, custodian. I decline to defend myself from the imputations that I have collected, or connived at collecting, facts with a decided bias in favor of a particular theory; that I have sought to get rid of exceptions in any other way than by presenting certain considerations that must be taken into account in facing such exceptions. As for my capacity for discovering truth, as I shall show presently, the latest of the findings of my colleagues and myself, just those specifically attacked by Heron, have been already confirmed.

And here, I trust, I may be pardoned for another personal word. While, from 1900 to 1909, I was associated with Pearson on "Biometrika" no fault was found with my scientific methods. Indeed, as late as June, 1909, when I sought to resign from Biometrika, the Editor asked me to continue my editorial connection with it; not to deprive it (as he was kind enough to put it) of the support my connection with the journal would bring to it. But from the time when he abruptly severed my connection (not on the ground that I failed to reach his ideals of scientific accuracy but because he conceived that I was out of sympathy with biometry), to the present, he has sought, by proxy, to minimize the value of my work. And not alone my work but that of many other biological students of heredity. Indeed, I am well aware that the present stricture is directed toward me only to stem the drift of opinion. If the attack were merely to urge caution in accepting new conclusions, it would be useful; but it is of a sort that must

inevitably tend to restrict discovery—to block scientific research—and on that account I cannot remain quiet.

B. The Strictures Upon Methods and Conclusions.

I. THE BIAS IN COLLECTING THE DATA.

The first specific allegation made under this head is that the material used in these papers "has been collected with a decided bias in favor of a particular theory of heredity" (p. 12). Actually our data have been collected in a number of ways. First of all, we have used the method of securing voluntary contributions of brief family histories, and of these we have some hundreds that have been drawn up with scrupulous care. In using this method we have simply been following the example set by Francis Galton and continued at the laboratory he founded. Moreover, in consequence of the financial support given to our work by our principal patrons and the cooperation of the superintendents and trustees of some 20 state institutions, we have been able to secure special data through the agency of trained "field workers" who are sent to ascertain the facts concerning the distribution of traits in certain families. We regard this latter data as particularly valuable because of the wealth of detail secured (at great pains) concerning the particular trait that is being studied. This method of field work was employed in this country 30 years ago by Dr. Alexander Graham Bell in his studies at Martha's Vineyard on deafmutism; the writer used the method to extend his own field studies in 1908. The method has long been used in "social work," especially in large cities. The value of the work naturally varies with the capacity of the eugenics field worker; at the best, it is valuable in the extreme.

In making a study of any family history one of the first questions that arises is, how far shall the history be carried? Here limitations are imposed by financial considerations and the probabilities of the case. If it is clear that the character is a positive one and the evidence is good that it usually reappears in each generation without a break, then money and time may be saved by laying relatively less stress upon tracing the normal collateral lines and relatively more stress upon following back the pedigree to as near its origin as possible and following down affected lines. If,

on the other hand, generations are skipped, it is necessary to follow down normal as well as affected lines, and this involves an extensive study of cousins. Such methods cannot possibly distort the truth but only increase the probability of finding it. It is perfectly true that our field workers are instructed in the results of biological work in heredity. Of course we assume evolution and heredity and we make use of the same methods of analysis that the biologists in general, all over the world, use. If Dr. Heron fears that we do not confine our instruction of our pupils to the biometric methods, his fears are justified. We are biologists, not applied statisticians. While admitting the value of biometry for studies in variation and correlation we insist on the futility of studying heredity as a mass correlation between parents and offspring. For, heredity depends not upon an influence of "parents" upon "offspring" but upon a particular combination of determiners in the fertilized egg, or zygote. The biometric method of studying heredity has been abandoned by all biologists. No matter how great the refinements used in this method it remains a mere expression of an observed relation but is useless for prediction in a particular case or for an insight into the causes of an observed hereditary relation. We simply accept the general method which is proving itself everywhere fruitful. If there were any alternative we should seek to apply that also. The biometricians would have us reject the advances of the last decade and deny that there is any determinable order or law in heredity except the order of chaos; or as Galton calls it "the supreme law of Unreason."

Our critic is, however, not candid or else he grossly errs in his strictures on this point. Thus on page 14, he quotes from the Trait Book the instruction "record only when all of the family, ff, fm, mf, mm, f and m, and children are alike." Then he adds, sarcastically, "This will make sure, of course, that all the *children* of two 'blond' parents will themselves be blond." Now such methods of criticism leave one quite helpless. Here is a clear intimation that collectors of data are required to select only special cases that accord with a conclusion drawn anterior to the fact. Certainly no more serious criticism could be made upon scientific work than this. When we turn to the Trait Book itself we find, however, that there is no such requirement nor even such a sug-

gestion. The Trait Book was compiled, among other things, as stated in the Preface, to supply "a list of traits that were to be indexed" at the Eugenics Record Office. This has nothing to do with collecting facts in the field. The reason why the indexer is not to record every case of blond hair is because of expense. Most of the data on hair color are self-indexed, much of it on special inquiry schedules. We did think it well to index blond *strains*. It will be noted that we undertook, in exactly the same fashion, to index brunet strains—yet no one has found that all the children of two brunet parents will themselves be brunet. What shall we say of a "critic" who willingly confuses the collection of data, for the study and indexing of a certain portion of it for the identification of "pure strains," and who ends the paragraph (after referring to a study where we cite some apparent exceptions to the usual experience that two blond parents have only blond offspring), by the words: "Had the rule (what rule? probably a rule which actually has never been suggested at this Office that only blond children of blond parents should be recognized by the investigator) been strictly applied, these exceptional cases would not have appeared at all, and how much better would have been the demonstration of Mendelism."

We are here, at the very outset, brought up against a very serious question concerning the personality of our critic. Are we to ascribe a "criticism," like the foregoing, to a certain incapacity by which he fails to make distinctions that are obvious to most persons; or is the case rather that in a sort of enthusiasm he loses, for the moment, clear insight, and scores a point recklessly? This is a matter that I have puzzled over a good deal; and I cannot reach a conclusion. This case is of importance because it is typical of most of the criticisms.

We object, emphatically, to the statement (p. 14), as a simple distortion of the truth, that our field workers are instructed "to make a special search" for those individuals who are necessary for the support of the Mendelian theory, and that "the data are indexed in such a way that no exceptions to the Mendelian rules can appear."

A careful consideration and examination of our material does not admit of the hypothesis that there has been bias in its collection. It comes from the most diverse sources; from hundreds of

volunteers who know nothing about heredity but are intelligent enough to answer wholly neutral questions, and from social workers who have had no instruction from or contact with the Eugenics Record Office, while collecting their data. These data have, as internal evidence proves, very different values; they have to be used with caution and common sense. Also, that we have falsified no records and repressed no facts is abundantly proven by our published work in which all cases are given, even though they appear to be opposed to the conclusion reached. And it is the presence of these exceptional and difficult cases, which we set forth with so much pains, that are the basis of many of Heron's strictures.

This section may be summarized by saying that we have had no one method of collecting data, since they come to us from over 2000 hands. We have used such methods in analyzing the data as long experience has indicated as best suited to discover truth; and, as the sequel will show, they are justified in the results.

2. CARELESS PRESENTATION OF THE DATA, INCLUDING, SPECIFICALLY, TABULATING THE DATA IN A MOST SLIPSHOD MANNER.

Far be it from me to minimize in any degree any real or important errors in presentation of our data, by tables or otherwise. But errors will creep in, despite of care; and in these days of typewriters and typesetting machinery the chances of omission of a word or even a line are increased and the omission may be of such sort as not to attract the attention of the proofreader. Joint authorship, especially where the authors are far removed and both independently revise the proof, is another source of error.

There are parts of Dr. Heron's critique for which I feel a genuine gratitude. At an enormous expenditure of pains he has detected some clear typographical errors, even some that we had overlooked, and this service is gratefully acknowledged. Thus in Bulletin No. 4, Table I, Ser. No. 469, under Father's sibs a "3" got into the wrong column. This has caused Dr. Heron a lot of work; he devotes half a paragraph on page 22 to that misplaced 3, and refers to it again on pages 22 and 23. The nature of the critic's treatment of this obvious typographical error well

illustrates the consummate skill he shows in the use of ridicule, an instrument that he uses repeatedly. "Thus if it be stated in one place that 3 individuals 'died early' . . . . and elsewhere in the same paper that the same 3 individuals married and had 3, 3 and 12 children respectively.". . . . In Table III the children in the double case 2015-4369b are wrongly entered and should follow Fig. 19 and its description. Again in Table I a curious error has crept in, of clerical origin. This is the exceptional case to the rule that two epileptic or "feeble-minded" parents have only epileptic or "feeble-minded" children. This is the error referred to on page 18 and again on page 59 where Dr. Heron says: "Dr. Davenport and his collaborators are obliged to exercise a considerable amount of ingenuity in getting rid of the rather frequent exceptions to the rules they so confidently lay down . . . . (a). The simplest method is, of course, to omit them without a word of explanation." The facts of the case are that, in preparing, some months later, his paper for the Eugenics Congress, in which he used much of the same materials and the same methods as in our joint paper, Dr. Weeks dropped the line in Table I from his work because he found it did not belong there. The reference is to a fraternity containing only one child (and hence intended to be omitted on account of its small size). This sole child is an epileptic in State care. The father drinks moderately; he is not an epileptic but has an epileptic uncle. The child's mother is epileptic. The case might have been placed in Table IV except for the fact that there is only one child.[1]

Dr. Heron calls attention to two errors that are real and scores that are fictitious, in the Summary of Characteristics in the Nam family; a summary that covers 18 quarto pages. Very likely there are other real errors; it would be surprising if there were not; even Heron's paper criticising us contains literal and numerical blunders. Finally, in "Heredity and Eugenics," the word normal is once printed for abnormal; and in the sentence "Many persons who are not regarded as feeble-minded have some one of these or similar defects, the typically feeble-minded are defective in several or many such traits" the word "one" is omitted—a typical typewriter or typesetter error because of the resemblance of *some*

[1] On page 9, line 3 of our joint paper, 1 is a misprint for 4.

and *one*. This error is regrettable; and Heron has taken full advantage of it, p. 16.

The foregoing constitute most of the real errors that I find in Heron's lengthy critique, so far as it applies to the writings with which I have been associated. The words in the Trait Book which he condemns have not always been chosen for elegance and his criticism is welcome. No one can be more conscious than I of the "crudities of the list," as I say in the preface to the work and, being abroad, I had no opportunity to see the proof. It was printed for use; has served its purpose well and the second edition, which will shortly appear, will be much improved as a result of two years of actual use of the book.

But Heron goes vastly further than to call attention to these errors. In his effort to shake scientific confidence in the whole work of the Eugenics Record Office and other American work which Dr. Heron would classify as "Mendelian," he has gone to extraordinary lengths and indeed made use of methods that are, so far as I know, quite new in scientific criticism, and which have enabled him to draw up a catalog of "errors" and "blunders" that looks appalling. These methods deserve a detailed consideration.

1. *The method of making unjustifiable assumptions and then refuting them.*—This includes the implication that the assumptions are the author's. As illustrations of this method may be cited the criticisms based on the erroneous assumption that in the pedigree chart absence of a special mark on a symbol for an individual indicates that nothing is known about that individual; whereas in the text the individuals are described. To this class belongs his statement (p. 22) "According to the pedigree the father is alcoholic *while nothing is known about the mother.*" The portion italicized of this statement is erroneous. Actually, in the pedigree, the mother is represented by a circle without mark of any kind. This merely means look elsewhere for a description; the chart is simply non-committal. Again, on page 22, Dr. Heron writes: "The author's assumption that any individual who has a defective or tainted relative is necessarily simplex is quite unjustifiable." No reference is given for this assertion and we are not aware that either author has expressed it.

On page 22, paragraph 4, our critic states that on comparing the details of the 33 pedigree charts, Tables I-VII and A, B, D, we

find that in *not a single case* do they agree. This is easily accounted for by his erroneous assumptions regarding the interpretation of the pedigree charts, and that the charts and tables are intended to give identical information. It would be clearly wasteful to have them cover exactly the same ground and repeat identical information; they supplement each other.

2. *The method of making erroneous statements of the author's views.*—This method of critique is sufficiently illustrated by two cases in parallel columns.

Davenport and Weeks, p. 1.	*Heron, p.* 15.
Epilepsy is employed in this paper in a wide sense to include not only cases of well-marked convulsions but also cases in which there has been only momentary loss of consciousness. Other physically well-marked cases of epilepsy and various epileptiform and borderline cases have undoubtedly been overlooked in the necessarily somewhat hurried investigations into the pedigrees of the patients.	The authors thus recognize epilepsy to be *a continuously varying character ranging through* "cases of well-marked convulsions *'to'* only momentary loss of consciousness *'and from'* physically less well-marked cases of epilepsy *'to'* various epileptiform and borderline cases, and those who are not epileptic at all. Only the first two groups, however, *are classed as epileptic, all others being grouped together as normal.*"

The portions of Dr. Heron's statements that I have italicized I dissent from as not properly drawn from our statement.

Davenport and Weeks, p. 18.	*Heron, p.* 17.
The tainted . . . are often, if not usually, simplex. P. 29. Summary: The conditions named migraine, chorea, paralysis and extreme nervousness behave as though due to a simplex condition . . . . Such persons may be called tainted.	The simplex include all cases of '*intermediate* mental states,' *i. e.*, 'the migrainous and neurotic, alcoholic, paralytic, sex offending, choreic, suicidal, criminal.'

I have not been able to confirm Dr. Heron's quotation given in this last sentence and he gives no reference for it. The summary as given by us is intended as the conclusion to be drawn from our studies.

3. *The method of leaving false impressions by partial statements.*—This method is used so many times that it may fairly be

stated to be the prevailing method of destructive criticism. I cite a few examples.

(Page 24, par. 3). "Thus Case 4529 of Table IV appears to refer to the same family as Case 4521 of Table A; but the former gives 2 neurotic and 2 'criminalistic' relatives; the latter 4 neurotic relatives." The facts concerning this case of "carelessness in tabulating" are that *both* tables state that there are 4 neurotic relatives; but the large Table IV adds a footnote to the effect that 2 of these neurotics are also criminalistic; while the highly special Table A, which has no footnotes, does not offer this additional information a second time.

(Page 24, par. 3). "In Table IV the normal parent of Case 380 has 1 neurotic and 8 paralytic relatives; in Table A, 8 are said to be neurotic and only 1 paralytic." Now, the facts are that in Table IV just 8 relatives are given in the Neurotic columns and 1 as a paralytic. But a footnote states that 7 of the neurotics were also paralytic. The different Table A gives the same 8 as neurotic and 1 as paralytic but, as in all other cases, the footnote information is not repeated. Heron has over a page of this sort of thing and it would have been easy to have collected much more.

(Page 25, par. 1). This method is employed in comparing Table VI with the special Table C. Heron's statement is: "In 17 cases the statements made in Tables VI and C do not agree . . . . there are" (then follow nearly two lines of case numbers). The fact is that Table C affords 11 columns for description of traits and Table VI only 3 columns for the corresponding traits; the tables cannot be compared and no one filled with the spirit of simple truth-seeking would seek to make a point of their differences. Similarly with the 21 cases of disagreement between Tables VI and D; also between Tables IV and A.

(Page 50, par. 4). "The pedigree (of the Nams) is said to contain 1795 individuals. . . . . 'Of the females 88 per cent and of the males 90 per cent are given to drinking to excess.' In dealing with the drink bill of this family the authors assume that there are 700 'alcoholics,' but in the 'Summary of Characteristics' we find *only* 182 individuals regarding whom any information with respect to alcoholism is given, and of these 12 are marked 'not alcoholic.' According to the first statement about 1600 drink to excess; according to the second, 700; and according to the third, even in-

cluding the doubtful cases, only 170 are known to be alcoholic." The 1795 is the total number of individuals considered in the study; it is nowhere stated that 1600 drink to excess. The drink bill is, as clearly stated, calculated for the Nams only (as opposed to the Outsiders) and the Nams count up to only 852 all told; a good many of them died in infancy. It is quite true that all the data concerning use of alcohol is not reproduced in the 'Summary of Characteristics,' but only some of the striking cases; we had to draw the line somewhere.

4. *The method of substituting a denial for an absence of any affirmative statement by the authors.*—The great class of cases in which this method is used is in the comparison of the pedigree chart with the legend attached to it. A few single letters, such as A, E, F, N, are sometimes placed on the pedigree in or around the symbol representing the individual. Very frequently to designate an individual in that way would be to speak too unqualifiedly. In such cases the symbol is left blank and the individual may be described in the legend, or in the Tables. Over and over again our critic asserts that "according to the pedigree nothing is known" and then shows that the individual is described in the legend. These cases are all cited as evidence of carelessness in presenting the data. Examples of this method of criticism are found in Heron's paper, p. 22, last paragraph; p. 23, second paragraph; p. 24, paragraph 2; page 44, paragraph 3; page 45, paragraph 1; page 57, paragraph 4. There are a good many variations of the general method. Thus (page 24, par. 2) "This mating appears in Table V as the mating of an alcoholic (but not tubercular) man." This is cited as an error because elsewhere in a legend to a chart this father was stated, correctly, to be alcoholic. Now the fact is that Table V has no column for tuberculosis and there is no obvious reason for a column on this trait in a Table dealing with nervous disorders. How does one fitly characterize the assertion that in Table V a mating appears "of an alcoholic (but not tubercular) man" when the Table contains no references whatever to tuberculosis; especially, when the assertion is employed to swell the list of "contradictory statements" made by the authors?

5. *The method of attributing to an author language that he did not use and then condemning him for the language.*—This is also

a favorite method with our critic. It is illustrated at page 53, par. 3, where Dr. Heron states that "in August, 1912, Drs. Estabrook and Davenport say that all [of the children of two alcoholic parents] are alcoholic." Actually we speak only (p. 67) of "the hypothesis that temperance is due to a positive determiner for self-control."

6. *The method of the multiplication of "errors" by adopting the worst construction.*—This general method may be illustrated by making use of an error in Heron's paper. At page 25 he cites 21 cases out of 33 of disagreement between our Tables VI and D. "Table VI" in his paper is obviously a misprint for Table VII. The VI comes at the end of the line and the last "I" may have fallen out in "making up" the form. Shutting my eyes to the obvious truth, I proceed, for purposes of illustration of Heron's method of critique. Heron cites 21 cases that disagree in Tables VI and D. In this single sentence he makes no less than 21 errors. For, first, 194a does not occur in both tables; also 914 does not; nor does 936, nor 1115, nor 1324b, nor 1356, nor 1445, nor 2232, nor 2254, nor 2583, nor 2627, nor 2983, nor 3189b, nor 3296, nor 4096b, nor 4113, nor 4413.[2] *One sees from this single example how grossly careless is our critic and how little reliance is to be placed on anything he says!*

Heron has used this method, e. g., in referring to Table C where he finds the sex of the tainted parent given wrongly in 25 cases, and right in only 2. The column in question is headed "Tainted parent." This is formally correct; and, strictly, there are no errors in the column (which is a very unimportant one in any case) but it would doubtless have been better to have used the phrase "normal, though tainted," in which case the greatest number of "errors" would have been 1, and this wholly trivial.

7. *The method of listing as errors-of-omission data which were not used because not sufficiently critical.*—It would seem that the authors were the best judge of which part of their material is best adapted to securing truth. We have noticed among statisticians a deplorable lack of attention to the relative value of the data used, to care in collection, to fullness of detail, to full publication of the facts. Probably it is because he has not been trained

[2] Four of the 17 cases are entered twice, making 21 entries altogether.

in this respect that Heron finds fault with us for not drawing conclusions from certain data which he lists with great pains and at great length, e. g., 31 lines on page 26, 18 lines on page 32, etc. I have not checked all the items in these lists of matings that "ought to have been included" but so far as I have gone they relate to grandparents who might have been used as parents in the subsidiary tables since something is known about their children. It is obvious that much less is known about grandparents, uncles and aunts than about parents and the fraternity to which the patient belongs; and it seemed to us only cautious to draw our conclusions from that part of our family history that is most fully known.

8. *The method of citing as evidence of carelessness the case numbers that are of use only to the authors and were altered to prevent their use by others.*—Here he has fallen into a trap which the authors unconsciously prepared for him. To avoid the possibility that a person who is not authorized should connect an individual at the institution with his family history, it was decided to apply alterations to the case numbers which enable the authors, but not the ordinary reader, to identify the case. None of the "errors" are such as would prevent the use of the numbers by the authors and they could be of no scientific use to others. Dr. Heron used them merely for criticism. Had we anticipated that there was anywhere a man of science with such abundant leisure, we should have published a warning that the reference numbers were for the sake of identification by the authors and not for scientific study.

Finally, one may refer to a number of criticisms that come under the convenient and, I fear, not unjustly applied, term of quibbling. Thus at page 18, the basis of the criticism is that "migraine" is classified under "neurotic." Page 21, Table VI contains reference to 3 families whose main fraternity contains no known epileptic but only feeble-minded while the Table is chiefly devoted to the origin of epileptic fraternities. Two or three pages (19-22) are devoted to our interpretation of the results of Tables II and VII. He thinks we do not know the proper way to interpret these tables. As a matter of fact we did use them largely to show the deficiency of normals in the offspring and thus to show their support of the rule that the simplex condition is often subnormal.

Dr. Heron's critique is interesting but he is entirely mistaken in alleging that the tables throw no light on the heredity of epilepsy and that there is no agreement between results and hypothesis (p. 22, paragraph 2). Owing to relatively small numbers the totals of the separate tables show considerable deviation from expectation assuming all neurotic, etc., as simplex. If we combine all tables we get smoother results. The *expected* relation of normals and simplex to neuropathic is, in all Tables, taken together, 450.5 to 208.5; *actually* the Tables give 424 to 235. The excess of defectives over expectation (about 6%) is quite in line with experience and is easily explained by the consideration to which Heron (p. 19) alludes,[3] namely that practically only fraternities containing at least one defective were in our Tables; fraternities having potential (but, through small numbers, not actual) defectives are left out of account. Had they been included the proportion of normals would have been raised.

On page 18 we read "The authors appear to hold that all normal parents are really simplex, and hence no matings whatever of Types III, V and VI appear." The reason for this is simple; we were studying chiefly the parentage of *epileptic children.*

While the section of Dr. Heron's paper which he devotes to Dr. Weeks' paper presented before the Eugenics Congress will not be considered here (the method of that critique is quite the same as in the preceding section) I may say that Dr. Heron's Table at the bottom of page 36 is without significance. All the data used in the joint Bulletin by Dr. Weeks and myself and those in Dr. Weeks' second paper were independently collated, new data gathered concerning the old families were included, and many new studies introduced. It is by no means rare that a family is studied a second time, that new data are obtained that modify former conclusions about persons and that bring to light new members of the family. But we can not afford to decline to publish to-day because we may get some new data later and even find that one or two per cent of our data are erroneous. The conclusion that Dr. Heron draws is: "We know no more about the heredity of feeble-mindedness and epilepsy than we did before." Clearly,

[3] We had certainly not overlooked this point (as Heron thinks); on the contrary, one of us has long insisted on it with reference to another recessive trait—albinism (G. C. & C. B. Davenport, 1910).

Dr. Heron speaks for himself. Yet how much more effective would be his criticism had he presented a few cases of two epileptic or imbecile parents producing mentally well developed children.

The foregoing constitute the principal methods employed by Dr. Heron in building up his imposing array of evidence that the American work in Eugenics is characterized by carelessness in presentation of data and a slipshod manner of tabulating them. By the methods Heron has employed, a similar bad case might be made out for any paper that presents such a mass of detail as our papers have presented. Only biometric work, like that of Heron on Insanity, that refrains from publishing any data whatever about individuals is relatively immune from attack by these methods.

3. IRRESPONSIBLE EXPRESSION OF CONCLUSIONS, AND, SPECIFICALLY, DRAWING MENDELIAN CONCLUSIONS THAT HAVE NO JUSTIFICATION WHATEVER.

It is not for one of us merely to deny the above allegation. The judgment of independent witnesses may be taken. If it appears that our results have been independently confirmed, even, sometimes, in ignorance of the American work and certainly outside its influence, that would certainly throw the burden of proof that the conclusions are unjustified upon him who asserts it.

First, the conclusion that two hereditary imbecile parents (or typical institutional cases of feeble-mindedness) have only feeble-minded children holds true for scores of pedigrees. If the announcement has received general acceptance by those interested, it is because the fact has long been dimly seen by those at the head of institutions and by social workers, only they had not definitely formulated it. Even if a case arises where a normal child is found in a fraternity from such parents, it is not more significant than the alleged cases of brown-eyed offspring of two "blue-eyed" parents. Blue eye is used loosely and erroneously even when the eye contains not a little brown pigment. Moreover, no one can claim complete knowledge on any subject. Science would not progress if students waited for such complete knowledge before publishing. First statements of a finding are usually approximations to the truth. Limiting conditions are worked out by further critical study. Outside criticism is useful in this process; but I regret to

state that in 62 pages of Heron's critique I fail to find a single helpful criticism other than those regarding purely verbal or typographical errors.

Second, the paper on epilepsy by Dr. Weeks and myself contained some trivial misprints. But its main results stand confirmed by wholly independent studies. Thus Lundborg (1913, p. 455) concludes that "progressive myoclonic epilepsy is an inheritable disease which, highly probably, follows the Mendelian rules, being recessive and monohybrid" (translation). Now myoclonic epilepsy is too close to "genuine epilepsy" to permit a doubt that it is a slight modification of the latter and that both are inherited similarly.

Third, as to Rosanoff's conclusion concerning the recessive nature of dementia precox and manic-depressive insanity. Despite the intemperate attack of Dr. Heron on the details of method the main results are being confirmed in far distant countries, quite outside the malign influences of the Eugenics Record Office. Thus Rüdin, a psychiatrist of high rank in Germany, carrying out field studies by himself, confirmed independently Rosanoff's conclusions as to dementia-precox and, in part, as to manic depressives. Lundborg in his great Medizinisch-biologische Familienforschungen has reached the conclusion (as a result of profound studies, wholly uncontaminated by and unknown to the Eugenics Record Office) that dementia-precox and psychopathic conditions of similar kind have a definite tendency to occur in proportions close to those which one expects theoretically in recessiveness. Jolly (1913, p. 220) from family histories that seem to me much less extensive (for the most part) than ours reaches the cautious conclusions which may be translated thus: For the groups of the schizophrenic psychoses (dementia-precox) a simple recessive inheritance may be possibly accepted as valid. "Für die Gruppe der schizophrene Psychosen (Dementia præcox) wird möglicherweise einfache recessive Vererbung Geltung haben." And again Jolly says: "Es ist sehr möglich, dass bei denselben recessive Vererbung statt hat."

It would appear that the greatest crime in all of the American work is my phrase "weakness in any trait should marry strength in that trait and strength may marry weakness." This phrase with variations recurs again and again in Dr. Heron's pamphlet,

like the motive in a symphony. These are the words that like "false coin" must be "nailed to the counter." In view of the apparent absence of any limit of space and expense in the preparation of Dr. Heron's pamphlet of 62 pages and in view of the importance of this sentence, it would seem but unreasonable to suggest that a candid critic would print the whole of the original paragraph of which the sentence is a part. A single sentence taken from its context may—when provided with a new frame—be hardly recognized even by its author. I print here the whole paragraph and assume responsibility for it in its original setting; but not out of my setting. It occurs as the final paragraph of a popular address where an attempt is made to put into the simplest, briefest language comparable with that of current proverbs, the best single general rule to guide in selecting marriage mates.

"The foregoing considerations indicate: If (A) the *negative* character is, as in polydactylism and night blindness, the *normal* character; then normals should marry normals and they may even be cousins. (B) If the negative character is *abnormal,* as in imbecility and liability to respiratory diseases, then the marriage of two abnormals means probably all children abnormal; the marriage of two normals from defective strains means about one-quarter of the children abnormal, but the marriage of a normal of the defective strain with one of a normal strain will probably lead to strong children. The worst possible marriage in this class of cases is that of cousins from the defective strain, especially if one or both have the defect. In a word, the consanguineous marriage of persons one or both of whom have the same undesirable defect is highly unfit, and the marriage of even unrelated persons who both belong to strains containing the same undesirable defect is unfit. Weakness in any characteristic must be mated with strength in that characteristic; and strength may be mated with weakness." Dr. Heron states (p. 6) "we cannot conceive of a greater evil" than that expressed in the teaching we have cited above.[4]

[4] I note that Heron quotes my phrase from "Heredity and Eugenics" (Chicago Univ. Press, 1912) where, also, it appears in connection with similar qualifying context. I originally used the sentence at the close of my "Eugenics," 1910, in the paragraph quoted.

Now nothing is clearer than this, that practically everyone carries some inheritable weakness. If the "weak" in any respect may not marry, as urged by the biometrician, the problems of eugenics would too readily be solved, I fear, through the eventual extinction of the human race. Now I was not addressing in my audience or in my book imbeciles or the insane; I was speaking to the average young man and woman. Many such, as I happen to know, do consider carefully progeny in selecting marriage mates; and my warning was that persons carrying in the germ plasm the same negative defect should not marry each other, thus rendering it probable that some of their children will have the same defect; but that they should bring somatic strength to their offspring. The possibility of reappearance of the germinal negative trait should, of course, be impressed on such offspring; and if they marry well for a generation or two the later progeny will probably be fitter than the population at large. Of course, there are still many cases in which the general rule cannot yet be applied just because we know so little of inheritance of traits. But for the others, it stands as the plain teachings of common sense backed up by such scientific knowledge as has been gained.

4. RAPID CHANGE OF OPINION.

To the highly conservative school of biometry, whose opinions seem to have been unaltered by the accumulation by biologists, during the past decade, of experimental data on heredity, change of opinion may well appear as a cardinal sin. But having parted company with that school I may as well confess to my conviction that it is better, in general, to modify a conclusion in consequence of new knowledge and further evidence than—not to. The conclusion that two epileptic or feeble-minded parents have only epileptic or feeble-minded children was based on data that were fully set forth in the paper by Dr. Weeks and myself. Eleven matings yielded 35 known children, all epileptic or feeble-minded. Thirty-five matings recorded in Dr. Goddard's researches gave 142 known offspring; all defective. Now these are all institutional cases of the feeble-minded. Extensive experience since with the pedigrees of institutional cases of the "feeble-minded" only confirm our general findings. We do not deny, however, that

bad *conditions* may repress the mental development of a person who carries a normal germplasm and may reproduce normal children. So far, we have not run across a case of that sort. In the "Hill Folk" we made our first study of an entire population and ran across a condition somewhat different from that found in institutional cases. This condition is that of the mating of two parents who, while "feeble-minded" in the broad use of the term, are mostly defective in one or more specific traits and not generally. Such parents apparently sometimes produce a "normal child," probably in the same way that two deaf mutes frequently produce normal children. There is really no conflict between these views. However, such generalizations as we have drawn have been based on evidence fully set forth. These conclusions may have to be qualified in the light of advancing knowledge. What has appeared is that, when both parents belong to hereditary imbecile[5] strains or both are unmistakably hereditary epileptics, the mating is in the highest degree dangerous, producing rarely anything but a defective child. The way to refute this conclusion is not to haggle and split hairs but to show by adequate cases that the conclusion is false. For myself, I can say, and I am sure I can speak also for my colleagues, that we are feeling our way in these matters; we recognize that we can never know all cases; we think, nevertheless, that we are justified in pointing out, as we go along, the conclusions that seem to follow from our findings.

C. The Probable Significance of the Repeated Attacks of the Biometricians.

Every result has many causes; and I am quite sure that the causes of the critique we are discussing—which cannot be understood apart from the series of attacks of which it is the most recent—are many and varied; and some of them, no doubt, really obscure to the biometricians. That our critic fails to ring true when on page 61, par. 3, he deplores the blow we have struck at careful Mendelian research, must be felt by all who have followed the history of the controversy in England. That the reason

[5] I use the word imbecile to denote such feeble-minded as show a general cessation in the development of mental capacities at an age of, say, six to nine years.

for the criticism brought forward on page 5, that the teachings of the American work (but now, no longer, as we have seen, confined to America) are actually dangerous to social welfare, is not a sufficient explanation, is amply shown by the methods of the critic which so distort the truth.

One can only feel in all candor, that, though they admit it not to themselves, the difference in the receptions of the results of the biological and the mathematical students of genetics, is a source of disappointment, and this, as is so often the case, leads to supersensitiveness. Thus, opinion on the significance of biometric work on insanity (which indeed has been done by Dr. Heron himself) is well illustrated by the following statements of students of family histories of the insane in Europe. Says Jolly (1913, p. 252) "The critics of these methods (*i. e.,* the methods of the English biometric school) have justly called attention to the fact that neither they nor the Galton 'law' touch the essence of the (hereditary) connection; that no biological laws can be deduced from them; their method is only a descriptive, not an analytical one." (translation). Referring to Heron's (1907) own paper on inheritance of insanity, Lundborg (1913, p. 254) says of Heron's work, "He conceives insanity in the collective as a unit conception; does not consider its various forms; his results, therefore, are of no account for testing biological laws." After reading these opinions of an expert on Heron's (1907) paper I was led to examine it again. One notes with interest that Heron attempts to test the Mendelian theory. He apparently has one family (but there may be more); of 8 children, 4 are "sane" and 4 "insane." In this crucial test of Mendelism the theory fails. One is astounded to discover that our critic who has vented sarcasm (p. 5) on our tentative hypothesis as to inheritance of the alcoholic diathesis where the crucial matings gave 21 children, has actually based his refutation of Mendelism on 8 children of a parentage concerning which we are left as wholly ignorant as to cause or nature of the insanity, as we are of the age at death of the children. The only product of this study is to give us a statement (based on guesses as to the size of an unknown, and unknowable, ratio) that the "intensity of the insane diathesis" is between 0.55 and 0.61. No wonder that the students of family histories of the "insane" find this biometric result so empty of significance for

themselves. If they have expressed approval of the results of the biologists it was because these results could at least be interpreted into ordinary language and be used practically, or else be disproved and abandoned. This is not at all to the credit of the biologists but is the necessary result of the method of analysis which they use.

In the first numbers of Biometrika (which roused high hopes in many of us) Pearson recalled that Galton had remarked that the new problems needed "a scientific firm with a biologist and a mathematician as acting partners and a logician as consulting partner." The consulting partner is dead; the biologist is dead and the young man whom he was training as his successor has gone over to the Mendelians and now biological problems are treated only statistically in the home of Biometrika. I conclude with the true words of Bateson. "To those who hereafter may study this episode in the history of biological science it will appear inexplicable that work so unsound in construction [as that of Professor Pearson and the Biometrical school] should have been respectfully received by the scientific world. With the discovery of segregation it became obvious that methods dispensing with individual analysis of the material are useless. The only alternatives open to the inventors of those methods were either to abandon their delusion or to deny the truth of Mendelism, but with the lapse of time the number of persons who have themselves witnessed the phenomena has increased so much that these denials have lost their dangerous character and may be regarded as merely formal."

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EXTRACT FROM LETTER TO C. B. DAVENPORT FROM DR. DAVID F. WEEKS, SUPERINTENDENT OF THE NEW JERSEY STATE VILLAGE FOR EPILEPTICS AT SKILLMAN.

Mr. Heron sent me a copy of his paper. I was surprised to see the amount of time wasted in searching out typographical errors. Had the same amount of time and energy been used to get something good out of our paper, I am sure he would have been repaid for his pains. Of course, you understand the reason for altering the number of our case histories. In reply to this part of his criticism would suggest that, if possible, the reply be worded so it will not be possible for persons to follow back to the case under discussion.

Between the time of writing our joint paper and the one for the Eugenics Conference, additional data had been collected for many of the cases and we separated all the matings with the insane in table Ia, as it seemed better to discuss feeble-mindedness in epilepsy apart from insanity. For this reason, the table was made showing the facts and not with an idea to "explaining away" the normals. I feel quite sure that had our findings and the expectations fitted exactly, Mr. Heron, in his frame of mind, would have said they were "fixed."

I am sure that any one who has ever done any amount of field work will appreciate the honesty of the statement, "drunkards who may or may not have been feeble-minded." Had our intentions been other than honest, we could have called these persons feeble-minded and had no occasion "to explain away an exception."

It might be pertinent to ask Mr. Heron on what grounds he based his statement on page 30, "further, a family containing a large number of defectives is more likely to be recorded than a family containing a small number of defectives," and he may be able to tell us whether alcoholics are defectives or not.

Before going to London I was told that the Galton Laboratory people would attack anything that was not in exact accord with their method of doing things and that the spirit of the attack would be bitter and made for the purpose of tearing down rather than building up. When I received Mr. Heron's paper I was reminded of this warning.

As far as I am concerned personally, my only object in publishing the material gathered at the Village, is to give the public and those able to draw conclusions an opportunity to use our material.

I do not feel that I know enough of biology or Mendelian theory to enter into argument with anyone, but if I can be of assistance to you, I shall be glad to do so. I shall be glad to join with you in your reply if you so desire.

Very truly yours,

(Signed) David F. Weeks,

Superintendent.

MENDELISM AND NEUROPATHIC HEREDITY.

A Reply to Some of Dr. David Heron's Criticisms of Recent American Work.[1]

By A. J. ROSANOFF, M. D.,
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In reading Dr. Heron's pamphlet one is struck first of all by the unusual temper of the attack apparent on almost every page. The works of Davenport, Davenport and Weeks, Rosanoff and Orr, Goddard, and some others are analyzed in a fashion, or referred to, without a single feature being found in them to be worthy of anything but unreserved condemnation from the critic; and yet no other critic or reviewer has found so much to condemn in these works; on the contrary, these works have been, on the whole, very favorably received and commented on. It is natural that this circumstance in itself should arouse a suspicion of a special reason or motive underlying the attack; and perhaps in anticipation of such a suspicion our critic has felt it incumbent on himself to offer some explanations.

Thus we read: "The task of the critic is always an ungracious and unthankful one; but if Eugenics is to become a recognized branch of science with that additional sense of social responsibility among its workers that must arise when we are discussing men and not mice, then the unpleasant must be undertaken without regard to the personal feelings which strong criticism inevitably excites." (P. 4.) And further, " . . . . those of us who have the highest hopes for the new science of Eugenics in the future are not a little alarmed by many of the recent contributions to the subject which threaten to place Eugenics with the older 'social science' and much of modern sociology—entirely outside the pale of true science." (P. 4.) It is evident that he would have us believe that only the interests of science, which might suffer but for his intervention, have led him to undertake the task of the critic; also that the self-imposed duty is performed with reluctance. Aside from the question of validity of the criticisms, which we shall take up later on, the very rhetoric of his style, the gusto

instilled wherever possible by harping repetitions, exclamation points, and other such devices, would indicate rather that his labor was carried on with much enthusiasm; any reluctance should surely have enabled him to confine himself more closely to the work of analysis.

Perhaps other passages in the pamphlet will throw more definite light on the question of reason or motive: "We propose to confine our criticisms to certain recent American work which has been welcomed in this country as of first-class importance, but the teaching of which we hold to be fallacious and, indeed, actually dangerous to social welfare." (P. 5.) "In this country we all know that a measure for the better control of the mentally defective has just been passed into law. No such law can touch at present those who carry this defect in a latent form, but such persons can be reached by the teaching that holds that parenthood must be looked upon as a sacred trust. The theory of Mendel has been used as an argument for the segregation of the mentally defective, and only recently we were told that to attack the application of Mendelian laws to the phenomena of feeble-mindedness was to wreck the passage of the Mental Deficiency Bill. If any argument for that bill be based on such slender considerations as the truth of Dr. Davenport's hypothesis, then the sooner the movement for the segregation of the feeble-minded is freed from such top-hamper, the less danger will there be of shipwreck." (P. 9.) "Why, we shall again be asked, does the Galton Laboratory waste its energies on destructive criticism? We shall be told, no doubt, that it is idle jealousy of the work of another laboratory. We are familiar indeed with this attitude of mind; the depreciation of well-meaning men, who do not see the gravity of the present situation—the impending danger that the new science of Eugenics will be strangled at its birth—as was the case of the once promising infant 'social science'." (P. 61.) "When we find such teaching—based on the flimsiest of theories and on the most superficial of inquiries—proclaimed in the name of Eugenics, and spoken of as 'entirely splendid work,' we feel that it is not possible to use criticism too harsh, nor words too strong in repudiation of advice which, if accepted, must mean the death of Eugenics as a science." (P. 62.)

The unfortunate position in relation to the scientific world of the English Biometrical school, to which Dr. Heron belongs, may account in some measure for the temper of the attack. They have, by reason of a pride in their own tradition, refused the guidance of the light of Mendelism, continuing to devote their time and labors to the investigation of the heredity of various traits in man as well as in animals and plants by purely statistical methods, while biologists the world over were piling up evidence of observation and experiment, continuously adding to the support of Mendel's theory. Eventually it came about that the work of the Galton Laboratory has been valued by the scientific world for the development of refined statistical methods and not as biological contribution to the subject of heredity. One may well say of the Galton Laboratory what Heine once said of his *alma mater*:

> Zu Göttingen blüht die Wissenschaft,
> Doch bringt sie keine Früchte.

The attitude of authorities toward the English Biometrical school has been well voiced by Bateson,[2] as follows: "Of the so-called investigations of heredity pursued by extensions of Galton's non-analytical method and promoted by Professor Pearson and the English Biometrical school it is now scarcely necessary to speak. That such work may ultimately contribute to the development of statistical theory cannot be denied, but as applied to the problems of heredity the effort has resulted only in the concealment of that order which it was ostensibly undertaken to reveal. A preliminary acquaintance with the natural history of heredity and variation was sufficient to throw doubt on the foundations of these elaborate researches. To those who hereafter may study this episode in the history of biological science it will appear inexplicable that work so unsound in construction should have been respectfully received by the scientific world. With the discovery of segregation it became obvious that methods dispensing with individual analysis of the material are useless. The only alternatives open to the inventors of those methods were either to abandon their delusion or to deny the truth of Mendelian facts. In choosing the latter course they have certainly succeeded in delaying recognition of the value of Mendelism, but with the lapse of time the number of persons who have themselves witnessed the

phenomena has increased so much that these denials have lost their dangerous character and may be regarded as merely formal."

We have dwelt on the temper of Dr. Heron's attack and on its probable reason or motive because it may have a bearing on the validity of the criticisms: any judgment rendered under the influence of a special bias and in a state of irritation can hardly be expected to be wholly impartial. Presently we shall try to answer, as far as possible, the specific criticisms of our work; this we have undertaken to do not in the hope or even in the desire to convince Dr. Heron or others attached to the biometrical school, but rather to defend our work before a tribunal of readers more likely to be without bias.

The first point criticized is the use of the term "insanity" in the title,[3] which use, the critic says, is very misleading, as the paper deals largely with the inheritance of the more comprehensive group of conditions under the general designation of "neuropathic constitution." An important matter is here touched on by the critic, but not one that we had overlooked. The material with which we started consisted entirely of institutional cases of certified insanity, but as we proceeded to study the genealogies in these cases we found not only other cases of certified insanity but also cases of epilepsy, hysteria, feeble-mindedness, alcoholism, and other anomalies; and in this respect the experience of every psychiatrist has been exactly like ours; the question is, then, whether only those certified as insane should be put down as affected individuals or also others presenting neuropathic anomalies but not certified as insane, and, if the latter, then what kinds and what degrees of anomaly should be regarded as justifying the counting of the individuals in question as affected. The present status of psychiatry is such that a full and exact answer to this question is hardly to be expected; and when in the study of data one is placed in a position necessitating the adoption of a definite policy the best that he can do is to guide himself partly by the prevailing judgment of other psychiatrists and partly by his own judgment and experience.

As a matter of fact certification of insanity is but an accident which may or may not come to pass in the life of a neuropathic

person; it depends on such matters as the presence or absence of anti-social manifestations, the nature of environmental conditions as tending to maintain or to disturb the mental equilibrium of the subject, the social standards of the community, etc. The policy pursued in our work is discussed in our paper as follows: "It is interesting to note that what we learn in institutional experience to recognize as insanity is a comparatively uncommon group of manifestations of the neuropathic constitution, for of our total of 437 neuropathic subjects (not counting the 21 who died in convulsions in early childhood) only 115, or 26.3 per cent, presented at any time in their lives indications for commitment to sanitariums or hospitals for the insane; moreover, it is obvious, where the facts are known in detail, that in most cases in which such indications have occurred they were in the shape of special reactions to special environmental conditions; and it seems equally obvious that our definition of the various types of neuropathic constitution must be in terms not of such special reactions, but rather of the more stable and more general underlying psychical traits and tendencies."

What is the attitude of leading psychiatrists in regard to this question?

Kraepelin[4] has expressed himself as follows: "The psychopathic charge of a family may reveal itself not only by the appearance of mental disorders but also by other forms of manifestation. Here belong before all those diverse slighter deviations from mental health which go to make up the borderland of insanity: nervousness, states of anxiety and compulsion, constitutional depressions, slight hysterical disorders and forms of feeble-mindedness, tics; also odd characters, peculiarities in mode of living, criminal tendencies, lack of self-control, intemperance, love of adventure, mendacity, suicide on an inner basis."

The opinion of Peterson[5] is very similar: "In determining the factor of heredity we must not be content with ascertaining the existence of psychoses in the ascendants, but must seek, by careful interrogation of various members of the family, for some of the hereditary equivalents, such as epilepsy, chorea, hysteria, neurasthenia, somnambulism, migraine, organic diseases of the central nervous system, criminal tendencies, eccentricities of character, drunkenness, etc., for these equivalents are interchangeable from

one generation to another, and are simply evidences of instability of the nervous system. It is the unstable nervous organization that is inherited, not a particular neurosis or psychosis, and it must be our aim in the investigation of the progenitors to discover the evidence of this."

Finally we would cite the opinion of Dr. Urquhart[6] as given in one of the memoirs of the Galton Laboratory itself: "But it would be a narrow view of insanity which would cause the observer to restrict his records to cases of declared failure of the integrity of mind. It is now recognized that the graver neuroses (hysteria, somnambulism and the like), that eccentricity, that a want of mental balance frequently appear among the progenitors of the insane. There is a transformation of neuroses in one generation into obvious insanity in the next. Similarly alcoholism in one generation may issue in insanity in the next, and on the other hand the most inveterate drunkards are often the immediate descendants of insane persons."

In the literature on the subject of heredity in insanity we find, in fact, but one work in which the need of taking account of neuropathic conditions other than certified insanity is ignored; the work is that of our critic, Dr. Heron,[7] from which we quote: "The material on which the present memoir is based was most kindly provided by Dr. A. R. Urquhart, physician superintendent of the James Murray's Royal Asylum, Perth." "The Perth records consist of 331 family trees. Each gives the total number of brothers and sisters of the patient, stating the order of birth and in many cases the age of each, and classifying each as insane, neurotic, alcoholic, epileptic, eccentric or normal." "If the insane diathesis be inherited, it is much more important to know the number of relatives who have at any time been certified as insane. In the present memoir we understand by the insane members of a family those who at any time in their lives have been treated as insane." Accordingly we find in Dr. Heron's statistical analysis of his material all subjects classified as either "Insane" or "Sane" or "Not Insane," taking no account whatever of Dr. Urquhart's characterization of many cases as "neurotic, alcoholic, epileptic, or eccentric."

We do not assert and never have asserted that we possess a full and exact answer to the question of the proper delimitation of

the conception of the neuropathic constitution; we have asserted, on the contrary, that such an answer psychiatry, in its present status, does not afford; we feel, accordingly, that in classifying subjects as affected or not affected we have in all probability made some errors in both directions; but we also feel that in pursuing our policy as outlined above we have reached a far closer approximation to the truth than did Dr. Heron in his study. He has gone so far as to accuse us of having done a "disservice to knowledge"; it seems to us that we would be better justified in making such an accusation against him, had but his work received the amount of attention in the scientific world as to merit the imputation of strength implied in such an accusation.

The next point picked out by our critic is what seems to him an inconsistency on our part. We say in our paper: "In selecting cases our aim has been to exclude all those forms of insanity in the causation of which exogenous factors, such as traumata, alcoholism, and syphilis, are known to play an essential part. . . . . We are not inclined to dispute the possible influence of heredity in these conditions; we have excluded them merely for the purpose of simplifying our problem by avoiding the necessity of dealing with a complicating factor in the shape of an essential exogenous cause." This in itself is not objected to by our critic; what he does object to is that having excluded alcoholic psychoses from amongst the cases selected for study, we nevertheless counted as affected cases of alcoholism occurring in ancestors or collateral relatives even if unaccompanied by obvious psychosis. What would he have us do? We could select our *cases* in any way that seemed wisest to us, but we could not choose the *ancestors or collateral relatives*; of course we could have counted alcoholics as not affected whenever we came across them, but by doing so we should have surely given him better grounds for offering a criticism than he had as it was; for, it is curious to note in view of his criticism, he himself has been led in a recent study to declare that alcoholism is very largely an expression of inborn mental defect; we will quote his own words[8]: "We are on fairly safe ground in asserting that the relationship between inebriety and mental defect is about .76. We have thus reached a definite measure of a relationship on which every authority on alcoholism has laid the greatest possible stress." "On the one hand, mental condition is usually re-

garded as being directly affected by alcoholic excess and on the other hand the extent of the individual's education is very largely determined by causes which are pre-alcoholic; yet we find here that there is a close relationship between the two characters, and this is strongly in favor of the view that the defective mental condition of these inebriates, like the extent of their education, is pre-alcoholic and that the alcoholism flows from a pre-existing mental defect, not the mental defect from the alcoholism." "All this lends support to the view that the mental defect of the inebriate is not an actual growth; it is born, not bred; that 'inebriety is more an incident in the life of the inebriate than the cause of his mental defect'."

We now come to a point when Dr. Heron takes up our conclusions *seriatim,* and we meet at once with a misapprehension on his part wherein he takes our statement of theoretical expectation according to Mendel's law for conclusions; we believe, indeed, that the neuropathic constitution is transmitted by heredity in Mendelian fashion but we are fully aware that our material does not show an exact correspondence between theoretical expectation and actual findings; what is more, the variable and for the most part unknown rôle played by environmental factors in the production of insanity is such that exact allowance for it can hardly ever be made, so that it may be anticipated that no collection of material will so reveal the facts as to afford a hope of finding such correspondence except by way of somewhat accidental coincidence; this, however, need not discourage us from trying to account, where it seems possible to do so, for small groups of cases which show failure of correspondence with theoretical expectation. If demonstration of the truth of Mendel's law were dependent on any material such as ours, the reviewer might well take exception to our method of analysis; or if the correspondence between theoretical expectation and actual findings, as it almost obtrudes itself upon the observer, were not at least approximately close, one might likewise take the stand of the critic and say that since so much explanation is needed, the case is unduly forced; but the fact is, it need hardly be stated, that Mendel's law is fully established on the basis of innumerable data of biological observation and experiment quite independently of our necessarily imperfect material, and that the approximate correspondence between our findings and theoretical expectation

would better justify us, in all common sense, to seek some explanation for observed exceptions rather than, on the basis of these exceptions, to reject the validity of Mendel's law in application to our case, and to assume at once that a series of traits well known to be hereditary in their essential nature is transmitted from generation to generation either in wholly irregular fashion or in accordance with some other, as yet undiscovered, law.

Thus in the case of the offspring from matings of type *a* (RR×RR = RR), 64 in number, instead of all being neuropathic according to theoretical expectation, only 54 were neuropathic and 10 were normal; in examining the data pertaining to these normal cases we found that 8 of them were very young, namely, from 8 to 22 years of age, and as to these we suggested the explanation that they had not reached the age of incidence.* This explanation is objected to by our critic as follows: "We have already seen that the neuropathic constitution ranges from infantile convulsions to senile deterioration; what, then, is the age of incidence?" The answer is, our critic knows very well what the age of incidence is, for he has figured it out himself in the study already referred to from material furnished by Dr. Urquhart, giving it as "37.9±.6 and a standard deviation of 13.6±.4." These figures of Dr. Heron's mean that if by any method it were possible to select a group of persons who were *a priori* either insane or fated to become so, the probability is that the majority of those under 24 years of age in that group would not be found to be, in fact, insane; of course it is true that subjects fated eventually to become insane may have various more or less pronounced neuropathic manifestations in childhood or at any time prior to the actual mental breakdown, but it is equally true that in the majority of such subjects the morbid tendency remains entirely latent, or at least so slight as to pass unnoticed, through the early years of life.

Similarly our critic points out that some of the subjects, the offspring of other types of matings, which have been counted by us as normal may have been young, that is, below the age of inci-

* We have made no systematic attempt to keep track of any of the subjects constituting our material; it will, however, interest the reader to learn that of the eight subjects here referred to one has, since the publication of our data, developed unmistakable evidences of mental derangement, according to information which reached us quite accidentally.

dence, and that there is a possibility that some of these were in reality fated eventually to become insane. This, of course, is not in anyone's power to deny; dealing, as we had to in our work, with subjects of all ages, the full life history was available in but a small number of cases, namely, those in which death had occurred in advanced senility; we would point out, however, that whatever error is involved here must be insignificant inasmuch as the total number of young subjects is comparatively small—only a few in the fraternities of the youngest generation, which is almost entirely the generation of our patients and their siblings, and hardly any among the sibships of the second generation, which is almost entirely that of the parents of our patients. We know of no way in which an allowance for this small error could have been made which would have provided satisfactory correction; if we had arbitrarily assumed that a certain fraction of these young subjects were fated to become insane and were therefore to be counted as affected and not normal it would have resulted, for the offspring of matings of types b and b_1 ($DR \times RR = DR + RR$), in closer approximation to theoretical expectation, and for those of types d and d_1 ($DR \times DR = DD + 2DR + RR$), in less close approximation, the net result remaining about the same as that arrived at by us without the aid of such an arbitrary assumption; Dr. Heron's suggestion to the effect that we should have excluded all subjects under the age of 38 would have resulted obviously in such overcorrection of the error as but to introduce another error, of greater magnitude.

The next point of our critic's attack is on the question as to which among normal subjects should be counted as *duplex* and which as *simplex*. In a given case this question has to be decided on the basis of the presence or absence of neuropathic subjects among the ascendants, siblings, or offspring of the individual in question; for a trait which, like the neuropathic constitution, is obviously recessive, if at all transmitted in Mendelian fashion, there is no stronger evidence of a *simplex* condition than the presence among the offspring of the individual in question of affected subjects; the assumption in such cases is, of course, that the neuropathic taint carried by such a normal individual and transmitted by him to some of his offspring is handed down to him from his own ancestors, and in some cases we found, in addition to affected offspring,

other evidence in the shape of affected siblings or parents. Dr. Heron says we had committed a blunder in assuming that every normal individual with a neuropathic sibling is necessarily *simplex*; it is hard to see where he found the evidence of our having made such an assumption, for not in a single case have we counted a subject as *simplex* on the sole basis of the existence of neuropathic siblings, demanding in every case the stronger evidence of the existence of a neuropathic parent, or offspring, or both.

As to the question of classifying a normal subject as *duplex,* it must be pointed out before all that complete proof of the correctness of such classification cannot possibly be had in any case; the *duplex* condition can be *excluded,* on theoretical grounds, in the case of a normal individual who has either a neuropathic parent or a neuropathic offspring, but no other data concerning relatives can either establish or exclude it.

There is, however, no doubt of the fact that the majority of normal individuals in an average community are, theoretically, *duplex* and not *simplex,* or, practically, not capable of transmitting to their offspring the neuropathic constitution; the mere fact, then, of an individual being normal turns the probability in favor of the *duplex* condition; if such an individual, known to have a neuropathic mate, has more than three children, all of whom are normal, the probability of the *duplex* condition in his case is thereby vastly increased (we say more than three children because, in particular, the offspring of our matings of the type *c* ($DD \times RR = DR$) averaged in number 3.2 + per family, not including those who died in childhood or concerning whom the data were unascertained); if in addition it is stated by informants that none of the relatives of the individual in question were known to have nervous or mental disorders of any kind, it seems reasonable to take the stand that the error which might be incurred in classifying the subject in question as *duplex* could be, for the mass of material thus treated, but very slight; and that if the only other alternative were accepted—that of classifying the subject as *simplex*—greater and at the same time purely gratuitous error would surely be incurred.

In this connection the critic takes us to task for not presenting in our charts the data concerning the ancestors and collateral relatives of the subjects classified as *duplex.* It so happens that all

but one of the matings, in which one of the mates is classified as *duplex,* have occurred either in the generation of grandparents or of great-grandparents of our patients; though we have in every such case the general testimony of our informants to the effect that none of the immediate relatives of the individual in question had, as far as they knew or had heard, any nervous or mental disorders, we made as a rule no attempt to collect data concerning each relative in particular; we felt that such data would have to be given from memory or hearsay and would be hardly of any greater value than the general negative statement, and for the few cases for which such data had been obtained we still felt that the general negative statement was of as much value as the data themselves, and were thus guided in the preparation of our material for publication. That the matter had received our attention may be judged from the following passage which we quote from our paper:

"In the actual analysis of the data collected in the course of our investigation the problem in each case was to distinguish, on the basis of the information obtained by questioning the relatives, neuropathic states from the normal state, and in the case of a neuropathic state to identify, if possible, the special variety. Such diagnosis often presents great difficulty when there is opportunity for direct observation, but when it has to be based upon observations of untrained informants related from memory the difficulty is, of course, greatly increased, and with it the chance of error. We have endeavored to reduce the amount of error from this source by interviewing personally as many as possible of the nearest relatives of the patients whose pedigrees were being investigated, and by the practice of tracing almost all the families not farther than to the generation of grandparents, for the farther back our inquiries extended the more scant and more vague was the information which we were able to obtain."

In view of the practical impossibility of absolutely establishing the fact of the *duplex* condition in any case, the fact of a chance of error in thus classifying a number of subjects must be admitted, no matter how abundant the evidence may be; it may be noted in passing that this source of error is not a discovery of Dr. Heron's at all; we had been fully aware of it and had taken it into account; we must here quote again from our paper: "On the

other hand, the fact of *duplex* inheritance was in every case based upon the absence of neuropathic manifestations in ancestors and collateral relatives, as far as known, as well as in the offspring;—but inasmuch as in scarcely any case was the family history traced farther back than the third generation it is clear that the possibility of *simplex* inheritance was in no case positively excluded; we have here, therefore, another source of error which, fortunately, is slight, and affects the least important part of our material, namely, the cases of matings from which no neuropathic offspring have resulted."

Before passing on to the next and last criticism we would point out what can only be considered either a wilful misstatement or another misapprehension on our critic's part. He asserts repeatedly that the subjects whom we have tentatively classified as *duplex* are said by us to be "normal and of pure normal ancestry"; this is simply not true; the truth is that not a single subject investigated by us has been described either in the paper criticized by Dr. Heron or in any other paper published by us as being "normal and of pure normal ancestry"; on the contrary, our attitude is and has always been that it would be impossible in practice to say that truthfully of any subject; the expression has but a theoretical value and is used by us only in the statement of the theoretical expectation in accordance with Mendel's law. We have already had occasion above to refer to his mistaking our statement of theoretical expectation for conclusions; this is evidently a part of his general method; he might as well have asked how it was that we had "drawn the conclusion" that "Both parents being normal and of pure normal ancestry, all the children will be normal and not capable of transmitting the neuropathic make-up to their progeny," without having in our material a single instance of such a mating showing such results: it isn't a conclusion at all and is not offered as such; it is a part of the statement of theoretical expectation according to Mendel's law, which is made by us in the belief that we have gathered convincing evidence to show that that law holds for the case of neuropathic heredity.

In approaching the end of the section devoted to the criticism of our paper Dr. Heron, apparently carried on by sheer inertia, is glibly "rejecting" without even stopping to say just what it is he

is "rejecting" and why; finally, however, he does offer one more specific criticism; in his parting shot there is so much that is illustrative of his temper and method that we feel impelled to quote his words in full, simply trusting that the gentle and patient reader will forgive us for so doing: "It is unnecessary to follow the authors in their discussion of degrees of recessiveness or of equivalent defect, but it may be noted that the last result, that about 30 per cent of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors and are capable under certain conditions of transmitting the neuropathic make-up to their progeny, must also be rejected. Apart from any other blunders, the authors have forgotten that when a simplex individual mates with a neuropathic or another simplex, it by no means follows that at least one of the children will be neuropathic; in the latter case three-fourths of the families of one, nine-sixteenths of the families of two, etc., will have *only* normal offspring. Even an elementary knowledge of Mendelian theory would have been sufficient to enable the authors to avoid such an obvious pitfall."

As regards the last remark we submit that the point at issue has nothing to do with Mendelian theory and that therefore one's knowledge of Mendelian theory is not shown in the way he deals with that point; it has to do rather with theory of probability. He declares we "have forgotten" that among the offsprings of the matings in question there will not necessarily be in every family at least one affected; now, whatever might be said of Dr. Heron as a critic, we are here impelled to point out that as a mind-reader he is an utter failure; he must surely grant that on matters of purely subjective fact, such as what we have tacitly assumed or what we have forgotten, we possess better information than he; we have already told him that what he said we had assumed we had, in fact, not assumed; we can now tell him that what he says we have forgotten, we have, in fact, not forgotten. The reason for our taking into account, in the above connection, *only* the families in which there was at least one affected subject is that *only* such families contain, in the shape of the affected subject, justification for counting both mates as having the neuropathic taint; as regards other families in which none of the offspring were affected we admit the possibility that both mates may have

been *simplex,* but there is no *proof* of it in any case. If it should be argued that, in view of this possibility, our figure is probably an underestimate, we would say that that, too, is quite likely; the trouble is, however, that no data are available that would enable one to determine to what extent our figure is an underestimate and, therefore, how much must be added for correction. However, our critic might have realized that our figure is offered not as an exact estimate of the prevalence of the neuropathic taint; who in the world could make an exact estimate? What we meant was to draw attention to the evidence contained in our material which startled us and which, in general, is hardly suspected, showing that a very large proportion of the general population is capable under certain conditions of producing neuropathic offspring; for the present, at least, importance attaches not to the question whether the exact proportion is 25, or 30, or 35 per cent, but rather to the fact that it is not some fraction of one per cent, or two, or three per cent. Had our critic, indeed, not gone out on the war path determined to find fault, he might have noted that we said "Our data seem to show that no less than 31.6 per cent of the general population carry the neuropathic taint." Anyone might know that "our data seem to show" does not mean "all data would, or ever shall, show," and that "no less than 31.6 per cent" does not mean "no more than 31.6 per cent." If later, in the conclusions, we say, in reference to the same data, that "It is estimated that about 30 per cent (deducting 1.6 per cent for those actually neuropathic) of the general population, without being actually neuropathic, carry the neuropathic taint," etc., it would seem clear that we do not mean "It is fully established that exactly 30 per cent," etc.

We fear we have already fatigued the reader with this sorry business of refuting a manifestly unfair and incompetent criticism; our plea is, however, that our critic having made the attack, it remained for us either to say nothing, and thus possibly allow some to think that we had no answer to make, or to answer; we have thought enough of our work to consider that it merited a defence; others, whom we consulted, have thought the same, and we have accordingly chosen the latter course. Such being the situ-

ation we feel that our answer, to be full, must take into account not only the actual criticisms, but also every other phase of the attack. Therefore, we still have to refer to a passage in the pamphlet which reveals a feature of method not quite so apparent elsewere, namely, *insincerity*. The passage is directed not only at our own work, but at the whole group of American researches; the critic declares, "The authors have in our opinion done a disservice to knowledge, struck a blow at careful Mendelian research," etc. Who is it that pretends to resent "a blow at careful Mendelian research"? It is a representative of a school which has always disputed the validity of Mendelism and the scientific standing of which in the field of heredity has heard its death-knell sounded as a result of "careful Mendelian research." The data of human heredity, particularly in the domain of psychic traits, can never compare with the best data of experimental biology; if one is led to deal with them it is owing to their importance and not to any notion that they are possessed of the highest scientific value; fortunately, in dealing with them, guidance having been made available by biological science, the problem before the investigator is not to discover or establish laws but to apply them, and material which may be unfit for the former purpose may serve very well for the latter.

To summarize, our critic, in spite of his evident determination to disprove the value of our work, has not succeeded in finding sources of error of which we were not ourselves cognizant and which we had not ourselves frankly discussed in our paper; neither he, nor we, nor others have as yet succeeded in suggesting any way of eliminating such sources of error. The main question that has relevancy as to the trustworthiness of our material is whether subjects counted by us as affected or not affected have been thus counted correctly; the question is purely one belonging to the domain of clinical psychiatry; our policy in regard to this question has been that which bears the approval of present-day psychiatric science and which is based on the universal experience of clinicians; that some mistakes have not been avoided after all, that some cases counted as affected have been wrongly so counted, and that others counted as not affected have also been wrongly

so counted, is undoubtedly true, and we have said so in our paper: "On the whole no pretension is made here of total elimination of error; but we believe that whatever errors remain they are not sufficient to invalidate the material as a basis for our study." This belief rests on the conviction that the errors are slight and, being in both directions, balance themselves to some extent. The burden of proof is upon the critic who, though a layman, assumes an attitude, in relation to a psychiatric issue, which is in opposition to a view universally held by psychiatrists; and if he, furthermore, attempts to disqualify, on the basis of his attitude, work which in his opinion contains too large a margin of error, he must in addition take the burden of furnishing an acceptable measure of the error before his criticisms can be rendered valid; this our critic has not done.

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THE FEEBLY INHIBITED

I. VIOLENT TEMPER AND ITS INHERITANCE

By CHARLES B. DAVENPORT

UNIVERSITY OF CALIFORNIA
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THE FEEBLY INHIBITED. I. VIOLENT TEMPER AND ITS INHERITANCE

By Charles B. Davenport
Carnegie Institution of Washington

A study has been made of 165 family histories of wayward girls in state institutions. The results of this make a mass of manuscript too formidable for publication at one time and so the method has been adopted of breaking it up into a series of studies of which each is to deal with one of the more important points discovered.

A. Statement of the Problem.—The general problem which has been studied is: In how far does heredity play a rôle in those traits, usually of a highly "emotional" sort, that lie at the basis of criminal behavior? The special problem of this paper is the classification of the cases of violent temper occurring in these families and the determination of their hereditary basis, if any.

B. Method.—The general method employed is that of research by a field worker into the history of the families concerned. Visits are paid to the homes of the patients and as many as possible of the family examined as to their emotional traits. The reports upon the findings of the field worker are used for the study of one trait at a time and such study has led to the formulation of an hypothesis as to the method of inheritance of some of them. If further inquiries appear to be necessary such are made by a

special investigator, who is sent out to discover, without prejudice, the facts as to the emotional life of the persons about whom information is required. If the facts discovered are found to agree with the hypothesis, that naturally gives assurance of the truth of the hypothesis; if the new facts are in disagreement the hypothesis is abandoned.

Attention is drawn to the value of field work for the study of emotional traits. The reactions—the behavior—of a person in the artificial environment of an institution give a wholly inadequate insight into his true emotional makeup. The best criterion of a person's emotional traits is his reactions in the world in which he has ordinarily to live. It is of relatively little importance that an adolescent boy or girl behaves well in an institution; the practical question is, Is he capable of moral control in the world of affairs? The field worker discovers the individual's reactions in his natural environment—whether that environment be better or worse.

In addition to the 165 original family histories made by a dozen different investigators, other material on deposit at the Eugenics Record Office has been occasionally drawn upon; this includes certain studies made on the family history of disturbed patients at Kings Park State Hospital and supplied for this study through the kindness of Dr. W. A. Macy, Superintendent.

C. Nomenclature.—In the data relating to many of the 165 families under consideration there is mention of "quick temper" or "violent temper"; and so often has the term recurred in describing different members of a family that it has seemed desirable to determine whether a law of its recurrence in members of a family could be established. Consequently the entire collection of reports was gone over and every case of violent temper found was recorded. Certain other phrases were also recorded such as "ungovernable temper," "bad temper," "tantrums," "fits" or "spells" of temper, "violent passion," "rage spells," etc. In a few cases the behavior of a person in a fit of temper is described fully without being named and these cases are also included. Table I gives the frequency of the different terms related to bad temper as they occur in the abstracts of the family histories. Not all of the individuals to which these terms were applied were included in our study as we shall see directly. In a few cases terms are given which do not obviously indicate a fit of bad temper but they

are included because the context indicated that they probably belong to this category.

In the 165 families some individual was found in 79 to whom one of the foregoing terms was ascribed as being a leading distinctive feature; this is about 48 per cent. of all. And of these 79 family histories bad temper of some sort is described in more than one individual in 49, or about two-thirds. Of the other 30 histories it cannot be said that they show no evidence of heredity for, first of all, many of them are very fragmentary, and secondly, in most of the others the single case of bad temper is recorded for an individual of a remote generation who left no excitable descendants and of whose ancestors no detailed information could be obtained. This study has included only families with more than one case of violent temper.

D. Classification.—On considering all of the fraternities that contain a person who is subject to violent disturbances of mood it very soon appeared that they fall into three groups, as follows:

(*a*) With at least one epileptic person in the pedigree.

(*b*) With insane, but not epileptic, close relatives.

(*c*) With neither insane nor epileptic relatives.

It is proposed to treat separately the record of bad temper in these three sets of families.

(*a*) *Outbursts of Bad Temper in Families with Epilepsy.* (Table II.)—In this group are placed all family histories showing clear cases of epilepsy among fairly close relatives of the propositus (or person with whom the pedigree starts). There are one or two cases with *remote* epileptic relatives placed in the class *b* because the majority of near relatives are "insane."

In this group, in a number of cases, the patient shows both epilepsy and bad temper and there are other members of the family who show these traits separately or together. I place the clearest and fullest cases first, the more fragmentary toward the end.

First, I will attempt a sort of composite portrait of the behavior of violent-tempered persons who belong to the families with epilepsy.

"Patient early developed convulsions and showed signs of an ungovernable temper; even as a baby she would beat her head against the floor. She was tantalizing and would get into tantrums, when she would slap at members of the household, pull their hair, hit them viciously, and bite them, and even pull her own hair and scratch herself."

Actually we get such accounts as the following:

(51) At housework her vicious temper got her into much trouble; in a fit of temper she hit her mistress in the abdomen so that the lady died of the injuries.

(42) Slapped at the members of the household, pulled their hair and once threatened suicide. At the Institution in one violent fit of temper she attacked the officer with a broom, and in another hit the officer in the breast; in another outburst she scratched and bit at the officer, kicked out panels of doors, swore and used the vilest language imaginable.

(36) In a fit of passion patient beats her little brother, whom she is rearing, over the head until he is nearly crazy.

(26) The patient's mother's brother in his violent temper throws things and will kick his 15-year old daughter; his older daughter has a very quick temper, throws her little brother around when angry and is remorseful after the fit.

(70) Patient enjoyed the discomfort of others; would strike, throw things and spit at her brother; would pull her own hair and scratch herself; after punishment would cry for a long time.

(92) When angry will throw anything she happens to have near at hand at the one who offended her.

(11) At state home would fly into a passion under the least provocation, pounding, screaming, throwing things around; again struck another girl with a chair, threatened and attempted suicide. She has an epileptic cousin who has a bad temper and throws things at any one who offends her.

(29) The father's mother's father had a very violent temper, once had a quarrel with a neighbor, waylaid him and threw a stone at his head.

(50) Patient is described by the police as a "Holy Terror" and an awful fighter, when drunk, so that it took six men to bring her in; has persecutory delusions.

(53) Brother was once in jail for threatening to kill his mother.

The outbursts of temper that occur in these families associated with epilepsy are thus characterized by sudden onset in persons of a generally disagreeable disposition; and by tendency to assault others, and occasionally to hurt one's self and to destroy things.

The "epileptic temper" has been long recognized. Kraepelin (1899) states that "it suddenly appears of a morning there as if flown in and in a few days it is gone." Raecke (1903, p. 97) regards as an "equivalent" of epilepsy an aroused temper which usually has a silly-foolish (läppisch-albernen) cast, especially in the children, and there is a strong tendency to outbursts of anger and brutal treatment. The following episode is typical: "A 20-

year old epileptic girl, who usually lay torpid under the bed spread, appeared, one morning, strangely elated, laughed, sang, became disorderly, went to other beds (in the ward) and pulled the hair of the other patients. When she was restrained she fell into a senseless rage, attempted to break the window, spit, struck, roared, danced on the floor and heaped abuse on everything about her. Placed in a separate room she calmed down in a few hours and appeared to have no memory of her acts."

Another case is given by Hennes (1910, p. 95). The patient has periodic outbreaks of temper without cause. In the morning the temper is already present and disappears during the day. Patient has a general irritability.

Ribot, (1896, p. 223) describes the epileptic temper thus:

"Even in periods of calm, the universally noted psychological traits reveal a sombre, morose, irritable, but, above all, irascible disposition—the 'choleric' character *par excellence*. In the paroxysmal period, we find the symptoms of anger carried to extremity; 'The patient' (I borrow Schüler's description) 'throws himself on his surroundings with a blind rage, a bestial fury; he spits, strikes, bites, breaks everything he can reach; shouts and storms. His face is congested, his pupils are sometimes contracted, sometimes—and more frequently—dilated, the conjunctivæ are much injected, the look fixed, there is abundant salivation, pulsation of the carotid, acceleration of the pulse.' . . . In the ensuing period of stupor, the acts of blind violence usually leave no trace in the memory."

Binswanger (1899, p. 281) describes the major attacks of psychic epilepsy thus: "They usually break out quickly after a short prodromal period; and differ from the minor attacks by the violent motor discharges which develop, clinically, on the basis of great mixed emotions of anger and anxiety, frightful, threatening hallucinations. A blind impulse to destruction characterizes the clinical picture. Violence, directed towards the life of the patient or that of others, makes the attacks so frequently the starting point of legal investigation."

It will thus be seen that much of the behavior in our cases is typical of the epileptic temper.

(*b*) *Outbreaks of Bad Temper in Families with Mania.*—Second, we may consider the 21 histories of temper in families with manic-depressive insanity (or allied psychoses).

In these cases we get such descriptions of temper as the following:

(154) Had angry spells when she was abusive to everyone and was troubled by melancholia and hysteria. Delusions arose and increased; her father's father had spells of anger, usually followed by long depression.

(7) Patient had an ungovernable temper; at the time of an attack would break things quite beyond her ordinary strength and would lash herself into an almost insane fury; these attacks would be followed by deep melancholia; often threatened suicide.

(54) Patient has violent attacks of temper. Once when asked by the matron to clean the windows she began, "Now you've loosed the devil in me." She told the matron she hated her. She swore and cursed and ran around the house, banging doors and making a great disturbance. A few hours after this, penitent; asserts that at such times she does not know what she is doing.

(117) Patient has periods of calm and periods of excitability, when she loses all self-control. She could go to a darkened room for hours or a day or two at a time and stay quite alone and not want anybody to speak to or bother her. At other times she would be excited.

(153) Has spells when she is easily excited and will fly into a rage and tear things up.

From Kings Park State Hospital come the following personal histories of periodic tempers in persons classified as having a manic-depressive psychosis.

W, ♀, quick tempered and quarrelsome. On her mother declining to give her more money she became very angry and excited, threatened to kill herself and her mother and secluded herself for 3 days. Her episodes (at the hospital) did not last long; she was very excited and assaultive.

R, ♀, has been in the hospital 6 times. At one time became somewhat irritable and depressed, insolent and abusive on the slightest provocation.

D, ♂, an efficient, educated man. Has always been nervous and irritable, difficult to get along with. Has been at the hospital several different times, usually showing restlessness and violence with depression followed by elation.

T, ♂, in attacks is very much elated, excitable, nervous and irritable and talks irrationally; at the hospital has been assaultive and resistive.

S, ♀, highly erotic; quarreled with husband.

Of the foregoing examples, Cases 154, and R and D of Kings Park seem to be the most typical of this class. A composite picture would be something like this.

Patient has angry spells when she is much excited (with or without elation) and under these circumstances is often irritable, abusive, even assaultive and sometimes she storms, swears and

makes a great disturbance; becomes easily discouraged, gets depressed; contemplates suicide.

Ribot (1896, p. 223) thus characterizes the maniacal anger "After a period of incubation during which melancholia prevails, a violent reaction takes place in sudden paroxysms. These vary from simple excitement to fury. There is a flood of ideas and an expansive humor."

(*c*) *Hysterical Outbreaks of Temper.*—We now come to the remaining cases of violent temper, those without clear evidence of epilepsy or manic depressive insanity in near relatives. This negative class may, in some cases, be due to the limits of the pedigrees; but, on the other hand, cases 66, 103, 40, etc., are fairly satisfactorily extensive, and would show the presence of epilepsy or mania if there were any among the near relatives.

In these cases we get such descriptions of temper as the following:

(46) Patient got into violent quarrels. If corrected, lay down on floor and refused to do anything. Returned to the rereceiving cottage she did well for two months, but then showed violent fits of temper. Had two other paroxysms which coincided with her menstrual periods—looked wild, sang, swore and smashed furniture, so that she had to be forcibly restrained. On the last occasion the fit lasted 36 hours. Two months later, just before menstrual period, she had another wild outburst; when reproved, she threatened matron, but in a moment burst into a storm of tears and showed herself extremely repentant.

(103) Patient's ugly periods would generally come at the time of menstruation. They would be two or three days in gathering; then would come the crisis and it would take a day or two to calm with perhaps a little rebound before it was all over.

(91) Patient, at times, becomes very restless, very excited and emotional, bursting finally into a violent temper. During one of these attacks she banged the furniture about, pounded the door of her room, smashed the window and threw things out.

(40) Patient in her sudden fits of anger hurls anything at the "offender"; is subject to quick changes in her likes and dislikes and it is impossible to count on her mood or her behavior two minutes together. Is violent in her likes and dislikes and quick to change without any reason. "Has no stability in her." On a Friday had an outburst when she sang, whistled, called bad names; and renewed outbursts on Saturday and Sunday. When restrained she broke furniture, threatened lives and made all sorts of impossible demands. At a woman's prison she behaved better because she "had to." Her sister also had a spell (at the institution) of banging doors and striking without provocation. Their

mother has a similar violent temper and suffers from frequent headaches.

(58) The patient's half sister, when crossed, lost all control, cursed and swore and made threats of killing. The fits were followed by remorse. Placed out, the fits came on and she struck her employer in the face.

(25) Patient, in an attack of temper, reviles every one, threatens to kill herself or others; her sister in a tantrum threw a lighted lamp at her paramour.

(61) Father's sister has violent outbursts of temper about once a month, when she is a regular devil.

(55) Patient, when things were not going as she wished, would fly into such a rage that she seemed at first sight insane. She had morbid spells about once a month when she would sit and mope and refuse food for 3 days. There is no family history of this case.

An attempt at a composite picture would go something like this:

Patient shows, especially at the menstrual period, an excited attack preceded by about two days of increasing restlessness. At the crisis patient sings, swears, bangs about movables, threatens to take her own life and that of others. The acute attack lasts for a day or two and is followed by a period of depression and inactivity for a day or two, after which the patient's reactions return to a normal level.

On the whole this case is differentiated from that of the epileptic temper (to which it is most closely allied) by *threats* of personal injury, in place of actual assaults; by having a more regular interval and especially by being often associated with the menstrual period. In this class of cases the temper is particularly apt to occur in females though not confined to that sex; and when it occurs in males it is also sometimes periodic—monthly or fortnightly (families 61, 103).

Monkeys show this type of temper. Garner (1890, p. 162) tells of his female chimpanzee, Elisheba, that when her male companion was annoyed or vexed by anyone she never failed to take his part. "At such times she became frantic with rage, and if the cause was prolonged, she often for *hours afterwards refused to eat.*" Here we get the same depression following the excitation as is shown by the hysterical young woman.

If a name were desired for this class of cases it might be called the hysterical bad temper and its diagnostic features periodicity and an insight into conditions which prevents the patient from carrying out her worst threats. In the epileptic temper, there is

frequently no such insight, there is often a partial or complete loss of insight and control in which the patient carries out her impulses. The epileptic temper is much the more dangerous to society.

The manic temper has a wholly different periodicity. It is present, usually, during a long time, several weeks or even months. Insight may or may not be present; elation is a common feature.

(*d*) *General.*—I have spoken in the preceding paragraphs of the epileptic, the manic and the hysterical violent temper. Are these three types to be regarded as wholly distinct entities or as due to the same kind of determiner in the germ-plasm modified in its development and manifestation by the other conditions that lie at the base of epilepsy, mania, and hysteria? The best criterion for deciding this question lies in a study of the inheritance of the tendency, and to that subject we will directly attend.

In the foregoing brief acount of the different forms of violent temper shown by our patients little is said about the inciting cause. Each outburst has, it is true, its exciting cause, but the important point is that at particular times—more or less periodic— the very irritant that would ordinarily cause no response leads to a violent reaction. The irritant is no more the sufficient cause of the outburst than the pressing of an electric key that closes the circuit to a "mine" is the sufficient cause of the resulting explosion. The patients are different from other people (even their own brothers and sisters) in that, at more or less regular intervals, they react explosively to a wholly trivial circumstance.

C. Method of Inheritance. (*a*) *Heredity of Violent Temper in Hysterical Families* (Table IV).—We may first consider the inheritance of the last class of cases—the "hysterical" group of bad tempers; because this is, perhaps, less complicated by the presence of violent neuroses—in fact, some of the cases seem to be nearly cases of pure "bad temper."

Before undertaking this analysis I may call attention to the fact that the data were collected by persons who did not have violent temper particularly in mind; the data came to be recorded because thrust upon them by the persons they interviewed. Therefore, the violent temper must have been, in every case, a striking trait of the personality. Also, it must often not have got into the records even when it existed; partly to shield those near and dear, who have, perhaps, recently died; partly because the facts are not recalled.

Of the 24 family histories there are only 3 in which the tendency to bad temper shows a break in any generation. These are: Case 91, in which the mother has long been dead; Case 4, in which the mother's traits are little known; and Case 66 where the mother's temper is not referred to at all. In the remaining 21 family histories there are 23 cases where at least one parent of an affected fraternity has a bad temper. There are seven fraternities in which at least one parent and one where that parent's parents show the same temper. There is only one clear case, or at most two (Cases 40 and 67), where *both* parents of an affected fraternity show the outbursts of bad temper. In the first case both children are affected; in the second case two out of five. This gives 4 affected out of 7, or 57 per cent., expectation being 75 per cent.

Now there are several possibilities concerning the inheritance of the liability to outbursts of temper in this class. It may be a "mono-hybrid" and then depend on the absence of a unit determiner or upon its presence. It may be a dihybrid or a greater multiple. It may be due to a complex of factors, or to the absence of some of them. If due to the absence of one of several factors influencing control of temper, then two "absences" in the parent might produce "presence" of the trait in the soma of all offspring. It might be sex-linked. Now our data, I think, suffice to enable us to decide definitely between all of these possibilities. The fact that the tendency usually (practically always in the fully studied cases) does not skip a generation indicates that it is *not* sex-linked and that it is a dominant. That it is not a simple absence of a monohybrid element is proved by the appearance of well controlled children in the progeny of two parents who show the outbreaks. If prevention of control of the temper were due to two factors, then in the offspring of two "heterozygous" parents only 1 in 16 should be without this preventer and thus only 1 in 16 should be able to control temper. As we have seen, 3 out of 7 are controlled and this is much nearer the 1 in 4 found in monohybrids than the 1 in 16 characteristic of dihybrids. It seems probable, consequently, that violent outbursts of temper—or tantrums—are due to a simple, single, positive determiner—a determiner that prevents the action of the inhibitor that normally keeps the emotions under control.

Since formulating this hypothesis numerous other family histories have come into my hands showing outbursts of temper of the hysterical type occurring for two and occasionally for three

consecutive generations; thus constantly the hypothesis is confirmed.

If the tendency to bad temper is a positive character, then matings of violent temper with controlled should yield in about half the fraternity the liability to outburst of temper or, occasionally, all the fraternity should be uncontrolled.

Of the fraternities of two or more described members that include no controlled persons we have four (Table V).

As these families are small no great stress can be laid on these matings which have yielded no controlled progeny.

Of the fraternities comprizing both controlled and uncontrolled and quite certainly having only one Tp[1] parent, we have the list given in Table VI.

Actually we get in 82 offspring 39 uncontrolled in temper. This is nearly the expected half. This supports, again, the hypothesis of the positive and monohybrid nature of violent temper.

B. Heredity of Violent Temper in Families with Epilepsy (Table II).—The whole subject of the relation of epilepsy and outburst of temper is a complex one. Bad temper, while common among epileptics, is not a necessary feature of their behavior. Indeed, the sudden violent temper that frequently introduces a convulsive attack appears (Binswanger, 1899, p. 188) most commonly with incomplete or small attacks. It would seem, then, that the emotional disturbance is not an essential part of the epilepsy in the sense that loss of consciousness is held to be; but that the same unfavorable conditions acting on a weak neural basis result in the loss of consciousness and, frequently, convulsions, and also may act on the inhibiting mechanism, resulting in outbursts of temper and other emotional storms. In epileptic convulsions the weak-nervous condition is the primary consideration; in emotional storms the hormones (if the suggestion may be hazarded) that paralyze inhibition are the chief factor.

In the 21 family histories in this class (Table II) there are 20 cases where of a fraternity having at least one representative with temper one parent is stated likewise to show bad temper, one additional case (Family 13) in which the record may properly be interpreted to indicate parental violent temper. There are 5 cases in which the presence of temper in either parent is not stated. There is one case of temper (Family 92) for 5 genera-

[1] Here and elsewhere Tp is used as a convenient abbreviation for *violent, more or less periodic, outbursts of temper.*

tions without a break; 8 cases of temper for 3 generations in direct descent and numerous cases of two successive generations. With the negative cases are not included the earliest generation (except in one case). In almost every instance of failure there is lack of testimony of any sort about temper. These facts then demonstrate that there is a difference in heredity between the tendency to unconscious spells found in epilepsy (see Davenport and Weeks, 1911) and the anti-inhibiting factor of violent temper. Typical cases are given in Figs. 1, 2, 3 and 4 and their legends.

An examination of the five doubtful cases (Nos. 36, 50, 51, 70, 160) yields the following results.

36. The patient's sister has a vile temper. She is rearing her little brother; from time to time she flies into a *fit of passion* and beats him cruelly on the head until the child is nearly crazy. The traits of the father are unknown; he died 6 years ago; one of his sisters is said to be an epileptic, another has a son who is a dementia præcox. The father's mother is of a degenerate family. The mother is quiet and well behaved; she has an epiletic sister who never loses consciousness during her fits. The mother's father was eccentric, severe, hard to get on with. The mother's mother was a simple plain woman. It seems probable that the tendency to fits of passion is a trait derived from the paternal strain.

50. The patient is an awful fighter when drunk; since the removal of her ovaries she has caused little trouble. Her brother and his son have each a violent temper and two others of her sibs have been at times insane. Her father was a mechanical genius and a wanderer; but as he disappeared 2 years ago no data could be obtained about his temper. One of his sisters had epilepsy for 22 years and had an epileptic child. The patient's mother was smart, capable, witty; one of her brother's children had "delusional insanity." The reason why we are not able to trace back the origin of the violent temper of the patient and her brother is probably because of our ignorance about their father.

51. The patient, described on page 596, epileptic herself and with two epileptic brothers, has an alcoholic father of whose disposition there is no record. His sister has epileptic seizures before and after which she is very cross and disagreeable. Both of the paternal grandparents are feebleminded, one died quite demented. Of the disposition of the mother, who is a feebleminded epileptic, we have little knowledge; she is now too deteriorated

to give any reaction but bears the reputation of being very quiet and not liable to outbreaks of temper. It seems probable that the violent temper comes through the father's line.

70. The patient is described on page 596. Both she and her sister have convulsions. The father is a man of intelligence and education and of good habits; a statistician. The mother is inferior but is reported to have "gentle manners"; her eldest sister has epileptic fits and became insane at adolescence; the second sister was subject to *irritable spells;* and the youngest sister was feebleminded and epileptic. The mother's mother was alcoholic and became queer before her death; two other members of the family were mentally unbalanced and one was also a kleptomaniac. The history seems to offer a clear exception to the rule; but details are unfortunately lacking concerning the mother's disposition and it is apparently from her side that the daughter's tendencies come.

160. It is the patient's mother's fraternity that shows the violent temper (the patient herself has *fits of sullenness*). The mother herself has a "bad temper" and *at times* she becomes unmanageable. The mother's youngest brother has an *ungovernable temper,* though mentally he is one of the brightest in the fraternity. The mother's father died 47 years ago; there exists the tradition that he and his two brothers were "not all right" mentally. The mother's mother also died 30 odd years ago. We thus lack knowledge of the disposition of these grand-parents because they have been so long dead. This history forms properly no exception.

Thus of the five doubtful cases that of Family 70 is the only one that can be said to be negative and here, also, adequate details are lacking. We may, consequently, conclude that violent temper in families with epilepsy is also inherited as a dominant, or positive, trait.

To compare the number of uncontrolled with the total number of described progeny in fraternities containing both controlled and uncontrolled individuals Table VII has been drawn up.

From Table VII it appears that of 66 available offspring 30 are liable to violent temper. This gives nearly the half expected on the hypothesis of the positive and monohybrid nature of violent temper.

In certain fraternities (26a, 26b, 157, 42:98 and K. P. 55469) resulting from the uncontrolled × normal mating, all offspring

show controlled temper; but as there are only 7 of such individuals this result cannot be said to be very significant.

C. *Heredity of Bad Temper in Families with Insane Relatives* (Table III).—In this class we are, unfortunately, dealing with relatively small numbers and the consideration of these families is introduced for the sake of completeness. Here we have positive evidence of "direct heredity" in 21 families and no evidence of direct heredity in 4 cases. The doubtful cases are Nos. 117, K. P. 33067, K. P. 35943 and K. P. 55464. The facts so far as known about these exceptional cases are as follows.

117. Propositus (patient's mother) has an uncontrollable temper; when angry will pick up a knife to use on victim. Her eldest brother had a *high temper* and another brother went on *sprees* and on these occasions his *high temper was uncontrollable.* About the father it is known only that he drank and stole, as did also the father's father. The father's father's mother had *intermittent* attacks of insanity. Of the mother very little is known except that she drank whiskey and morphine and came from recognized bad stock. It is doubtful whether the violent temper of the central fraternity is derived from the maternal or the paternal side; adequate data are simply lacking on account of the remoteness of the generation.

K. P. 33067. Patient is described as R (page 598). The diagnosis of her case is manic-depressive insanity. She has had 3 insane brothers. Of her father we know only that he died insane, but nothing is known about her mother.

K. P. 35943. Patient is described as D (page 598). He is a manic-depressive. His father has undergone senile deterioration at the age of 79; he has an insane brother. The patient's mother is unknown.

K. P. 55464. Patient is described as T (page 598) and the diagnosis is manic-depressive insanity. The family history is extremely fragmentary (the rest of the family is described in 16 words).

Thus it appears that in all cases where data are given for one generation only of violent temper there is merely a lack of any (or, at the most, of sufficient) data about the ancestors of the propositus.

It is probable that the liability to emotional storms is, in some cases at least, distinct from the neuropathic constitution and that

the association of such violent outbursts of temper with mania is not a necessary one. Yet mania and bad temper have certain relations. Inhibitions are removed in both cases; in mania sometimes in both the intellectual and the emotional spheres. As Stransky (1911, p. 48) says: "The psychosis induces, as it were, the paradoxial effect of an increased mental capacity, since the psychomotor excitation and the emotional elevation set aside those inhibitions which otherwise oppose the conversion of inner excitations into external acts."

The actual facts in regard to family histories of bad tempers associated with insanity are given in Figures 5 and 6 and their associated legends.

To get the proportion of uncontrolled individuals to described individuals in fraternities derived from the matings of uncontrolled × uncontrolled Table VIII has been drawn up.

From Table VIII it appears that, of 83 offspring of uncontrolled × controlled matings available for study, 40 are liable to outburst of temper. This gives about the half expected on the hypothesis of the positive and monohybrid nature of the factor of violent temper.

D. *Conclusions drawn from the study of Inheritance.*—The best single rough criterion of a simple dominant trait is the reappearance of the trait in each generation in some of the children of an affected person. This criterion is most strikingly fulfilled by the trait that we are considering.

Family 92 (Fig. 1) is an especially noteworthy example for here, on account of the prominence and intellectual standing of the members of the family, the tendency to violent emotional disturbances has been recorded and can be traced without a break for five generations. In a fair proportion of the histories the family tendency can be traced for three consecutive generations.

It follows naturally that, since the tendency to violent temper does not skip generations, unaffected members of a fraternity, who select an emotionally controlled consort, will only exceptionally, if ever, have affected offspring.

To test segregation of the trait it is necessary to examine the ratio of affected offspring in any fraternity to the total number of offspring whose emotional history is fully described. From the mating of a simplex uncontrolled and a normal person expectation is that 50 per cent. of the children will be uncontrolled.

A summation of Tables VI, VII and VIII gives a total of 109 affected among 231 sufficiently described, or close to the 50 per cent. expected on the hypothesis that the tendency to outbursts of temper is a monohybrid positive trait.

The study of the data of inheritance considered in this paper leads to the following conclusions.

1. The tendency to outbursts of temper—"tantrums" in adults—whether more or less periodic or irregular and whether associated with epilepsy, hysteria, or mania, or not, is inherited as a positive (dominant) trait, typically does not skip a generation and tends, ordinarily, to reappear, on the average, in half of the children of an affected parent.

2. It would seem to follow from the data here presented that epilepsy, hysteria, and mania are not the causes of the violent tempers frequently accompanying them; the violent outbursts are in no clear sense the "equivalent" of these various psychoses. Rather the violent outbursts of temper are due, in all these associations, to a factor that causes periodic disturbance (possibly, paralysis of the inhibitory mechanism?). This factor has the greatest effect when acting on a nervous system that is especially liable to show the other psychoses. In other words, "tantrums" are apt to be associated with these various neurotic conditions while they have no necessary connection with them.

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TABLE I

Terms Used by Field Workers in Describing Temper, and the Number of Times Each is Used

Quick temper	50
Terribly quick temper	1
Violent temper	47
Very violent temper	4
Exceedingly violent temper	2
Ungovernable temper	13
Uncontrolled temper	10
Loss of temper	1
Bad temper	24
Very bad temper	5
Terrible temper	2
Hot temper	5
Vicious temper	2
Ugly, ferocious, fiery, each	1
Severe, sharp, harsh, strong, irritable, uncertain, very hot temper, each	1
Violent, hasty temper	2
High temper	4
Fits of temper	9
Violent fits of temper	2
Terrible fits of temper	1
Violent temper, when drunk	5
Spells of temper	3
Outbreaks of temper	2
Outbursts of temper	2
Violent outbursts of temper	1
Outbursts of violent passion	1
Rage spells	1
Tantrums	3
Violent tantrums	2
Anger	8
Violent anger	1
Furious anger	1
Easily started anger	1
Disposition: bad, 1; cruel, 2; ugly, 1; devilish, 1.	
A few other scattered terms (quarrelsome, 5; irritable, sharp tongued, 2; irascible) were employed which give a less clear picture or have a doubtful significance for our study.	

TABLE II

Showing the Distribution of Bad Temper in the Principal Fraternity when there are Epileptoid Convulsions in it or in Close Relatives, Ancestry, etc.

Family No.	Offspring							Ancestry							
	Total	×	†Early	Temper		No Temper		F	FF	FM	Remarks	M	MF	MM	Remarks
				♂	♀	♂	♀								
11	4	0	0	1	1	1	1	Tp	x	Tp	F's sib's ch. E, Tp	N	N	Tp	M's sib Tp (fig.2)
15	4	0	2	0	1	0	1	Tp[1]	x	Tp		Lewd.	A	A, Sx	M's sib E.
18	4	....	1	....	1	1	1	Good natured	N[2]	Ne[3]		Tp	Tp?	Ne	(fig. 3.)
26	1	0	0	0	1	0	0	—	—	—		Tp	Tp	N	M's F. bro. E (fig. 4)
26a	3	0	0	1	2	0	0	Tp	—	—	F's sist. Tp FB Tp FB E	Religious	N?	—	MFB E
26b	3	1	0	1	1	0	0	Tp	Tp	N	FFB E	Sx	x	x	
29	3	0	0	0	1	0	2	Tp	—	—		—	—	—	
36	10	2	0	0	1	3	4[4]	x	x	From degenerate family	F's sist. E FB (F)	Sx, Scandal monger	Severe, Eccentric	x	M's sist. E or hyst.
42	1	0	0	0	1	0	0	Quiet	N	N		Tp, E	Tp	N	
50	6	2[5]	0	1*	2[6]	0	1	x(w)	x(w)	X	F's sist. E * has son, Tp	Witty	—	—	MB has 3 children with delusional I
50a	2	0	0	1	0	1	0	Tp	Tp	X	FMB, 3 sons I FF sist. E	Moron	—	—	
51	10	8[7]	1, E	0	1	0	0	F, A	F, A	Demented		E	—	—	
53	4	0	0	2	0	0	2	Tp	x	—	FB, (F) F's sist. (F) FB (E)	—	—	—	

[1] F's 2 sibs Tp. [2] One niece, I. [3] Her grandfather, E. [4] One highly excitable, two suspicious. [5] I. [6] One I. [7] Two are E, and five are (F). F's sister E. * "One of two of this man's sons" has his father's temper.

TABLE II

Case No.	Offspring							Ancestry							
	Total	×	†Early	Temper		No Temper		F	FF	FM	Remarks	M	MF	MM	Remarks
				♂	♀	♂	♀								
70	2	0	0	0	1, E	1, E	0	x	—	—		Gentle	A	A Queer	M's sist, E & I M's sist, irritable
92	4	1	0	0	1	1	1	Tp	Tp	N	FFF Tp	Sx	Relig. I	x	M's sist, (F) & E MM sist E MMB E M's sist I (fig. 1.)
92a	4	1, E	0	1	1	1, I	0	Tp	Tp	N		N	—	—	
119	9	1	0	0	2[8]	1	5[9]	Tp	—	—		F	F, A	Opium user	M's sist. E MF sist. child I MM sibs A
122	4	1[10]	0	0	1	0	2[11]	Jolly	Con-trolled	Jolly		Tp	W, sprees	—	MB, Tp; MFB, E; MFM, E; MF's sist. I
157	4	2, E	1	0	1[12]	0	0	E	A	x	F's sist's dau. Tp	Tp	Tp	0	M's sist. dau. tantrums. MB, Tp
160	9	0	1, E	1	1	1	5	Queer	—	—		x	—	—	
42:98	12	9	1	2	0	0	0	E?, Tp	E	—	FB, Tp	x	—	—	
42:103	11	1	5	3[13]	0	2[14]	0	A	x	x		Ugly Tp	x	x	M's sist. "ugly" disposition
42:81	3	0	0	2	0	0	1E	Tp	x	x	FB sui	Mild	—	—	
K.P. 55469	1	0	0	0	1	0	0	Tp	A	—	FB's son E	E? even-tempered	demented	mind impaired	
41:120	12[15]	0	0	3	3	4	2	Tp[16]	N	Tp		Ne	—	—	
Totals	126	29	11	18	25	16	27								

[8] One (F). [9] One (F). [10] "Stubborn." [11] One swears. [12] Nine years, unstable and hard to manage. [13] One E. [14] One goes on sprees, one Ne. [15] Three have convulsions. [16] Of 8 sibs, one quick Tp, two irritable.

Abbreviations.—A, alcoholic; B, brother; bro, brother; ch, child; dau, daughter; E, epileptic; (F), feebleminded; F, father; F's, father's; I, insane; M, mother; N, normal in respect to temper; Ne, neurotic, psychoneurotic; sib, brother or sister; sist, sister; Sx, erotic; Tp, violent temper; W, nomadic; x, no details; † early, died young; ♂ male; ♀ female.—no description.

TABLE III

Showing the Distribution of Bad Temper in a Principal Fraternity where there is a Record of Mania in it or in the Close Relatives, Ancestry, etc.

Case No.	Offspring							Ancestry							
	Total	×	†Early	Temper		No Temper		F	FF	FM	Remarks	M	MF	MM	Remarks
				♂	♀	♂	♀								
7	4	1	0	0	1	0	2	Sx A	Sen. dem.	Par. I	FF sibs, sui. melancholic	Passionate Queer, Tp	"Spells" of being rattled	—	MF sibs have Tp MFM sist Md-I (Fig. 5)
21	4	0	0	0	2	1	1[1]	Tp	Sx, A	Tp	FFM (I), F's sist has tantrums FB, abused wife FB, taciturn	Ugly but now cowed	Nervous, excitable	Sweet disposition	
54	1	0	0	0	1 I	0	0	When drunk unpleasant	—	—		Tp, when drunk violent as a beast	† Paralysis	† Paralysis	MFM (I) M's sist. (I)
57	9	5	0	2	0	2	0	—	—	—	—	Tp[2]	—	—	—
63	3	0	0	0	2	1	0	Tp	Tp			Weak character			M's sib I (Fig. 6)
117	5	0	0	2[3]	2		1	Wild	A	X		Demon; drug fiend	"bad stock"		
117a	5	0	0	1[4]	2[5]	2	0	F. swears		F	FFF, Tp	Tp	Wild	Tp	MB, hypochondriac MB, sui, Tp.
137	4	0	0	0	1,I	1	2	Tp	sui	even		Flighty	N	I (d. p.)	
146	2	0	0	0	1	0	1 Ne	Tp	even tempered	Tp	FB Tp Fs sist. I FM sis. Tp.	Tp	Good disposition	Sui. I	MB I M's sist. I MB Tp
146a	7	0	4	2	1,I[6]	0		even tempered	Jolly[7]	N		Tp	—	—	M's sist., I & Tp MF, I
153	4	0	0	2	0	0	2[8]	F	—	—	F's sist. I	Tp, I	Tp	Tp, I	
153a	11	0	6	0	3[9]	0	2[10]	Tp	—	—		Irrascible I	—	—	
154	3	0	0	0	1,I	2	0	I, A	Tp	Mild		Tp, I	Tp	Tp	
156	8	0	0	3	1	2	2	F	N	N		Tp, F	Tp, I	Tp	

[1] Excitable. [2] Sister insane. [3] Hypochondriac. [4] Swears. [5] One swears. [6] Daughter, Tp. [7] Sister I. [8] One I and I (F). [9] One I. [10] Two I. [11] One I, 1 Ecc. [12] One E. [13] Four are Ne. [14] One I. [15] One had spasms. [16] All I. [17] One Ne.

TABLE III

Case No.	Offspring							Ancestry							
	Total	×	† Early	Temper		No Temper		F	FF	FM	Remarks	M	M	MM	Remarks
				♂	♀	♂	♀								
161	9	1	2	2	0	2	2^{11}	Tp	I	x	1 ecc.	good natured	—	—	
21:591	11	0	1	3^{12}	1	0	6^{13}	Tp, I	Sx	Sx		Irritable		Irritable	
41:120	11	0	0	3^{14}	2	4^{15}	2	Tp	N	Tp		x			
K.P. 33067	4	3^{16}	0	0	1	0	0	I	—	—		—	—	—	
K.P. 35943	1	0	0	1	0	0	0	Sen. deterioration	—	—	FB I	—	—	—	M's sist. I
K.P. 55464	3	0	0	1	0	0	2	N	N	† apoplexy		N			
K.P. 54826	1	0	0	0	1,I	0	0	Tp	—	—		N			
K.P. 57669	3	0	2	0	1,I	0	0	Tp	Tp	good natured		N	even tempered	Tp	
K.P.57669a	4	0	0	1	1	2	0	Tp	—	—		N	—	—	
K.P. 61790	3	0	several	0	1,I	2^{17}	0	I, A	—	x	one of F's sibs had fits	Tp, I	Tp	N	
K.P. 62405	4	0	0	0	1,I	2	1	Tp periodic A	—	—	FB sui.	—	placid	—	M's sist Tp.
Totals	125	10	15	23	27	23	26								

Abbreviations.—d.p., dementia præcox; ecc, eccentric; Md-I, manic depressive insanity; sen. dem., senile dementia; sui, suicide. For additional abbreviations see Table II.

TABLE IV

Showing the Distribution of Bad Temper in the Principal Fraternity where there is no Epilepsy or "Insanity" Recorded in the Close Relatives, Ancestry, etc.

Case No.	Offspring							Ancestry							
	Total	×	†Early	Temper		No Temper		F	FF	FM	Remarks	M	MF	MM	Remarks
				♂	♀	♂	♀								
4	2	0	0	0	1	0	1	Disappeared Bad repute	x	x		Sx, Ne [Tp?]	x	Tp	
9	3	1	1	0	1	0	0	Tp	Thief	Tp hysterical		Hysterical melancholic	demented	F	MB stubborn (Fig. 7)
23	8	0	1	1	0	4	2	Abused wife and children	Good	—		Tp	Good character	—	M sib Tp
24	12	2 yg.	8	0	2	0	0	Good	—	—	F's sibs self controlled	Tp	x	—	M's 2 sibs Tp
25	18	2 yg.	10	0	4	2	0	Tp	Sx A	Tp demented		F	Periodic sprees	Good repute	M's F's sist Tp (Fig. 8)
27	5	0	0	0	1	4 weak	0	Sprees, Tp	Wayward	Tp	F has 4 sibs with Tp	Gentle	Quiet	Patient	(Fig. 9)
27a	6	1	0	1	3	0	1	Wayward			F's 2 sibs Tp	Tp			
40	2	0	0	0	2	0	0	Tp	A	A, Ne	F has 3 sibs with Tp	Tp			
41	5	0	0	0	1	2	2	Tp	Tp	Fits, easy going		Fainting spells easy going		melancholy	MF B's son E (Fig. 10)

[1] Wayward but young. [2] Three years old. [3] Young. [4] One silly.

Case No.	Offspring							Ancestry							
	Total	×	†Early	Temper		No Temper		F	FF	FM	Remarks	M	MF	MM	Remarks
				♂	♀	♂	♀								
45	3	0	0	2	1	0	0	Tp	—	Steals		Melancholic	—	—	
46	4	0	0	1	2	1[1]	0	Tp	W	N		N			
58	2	0	0	0	1	1	0	Sprees		—		Tp	—	—	
58a	3	0	0	0	1	2	0	N	—	—		Tp	—	—	
61	7	1	0	1	3	2	0	N	—	—		Tp	—	—	
66	2	1[2]	0	0	1	0	0	"Good repute"	A	Quiet		F good-natured	"Good repute"	Sx	MM sist Tp.
67	7	2[3]	0	0	2	2	1	Ugly	Tp?	N		Tp	—	—	
73	2	0	0	2	0	0	0	—	—	—		Tp	—	—	
76	8	1	0	4	1	1	1	N	—	—		Tp	—	—	
77	4	0	0	0	2	2	0	N	N	N	F's sist Tp	Tp	—	—	
86	8	0	0	3	1	2	2	Tp	—	—		N	—	—	
90	14	0	1	2	4	4	3	Tp	Rough, miserly	Childish in old age	FF sist "not right" F's 2 B's Tp	Hysterical Beats children	x	depressed	MM's sist. E MF B sui.
91	1	0	0	0	1	0	0	F Tp?	Tp?	Sx, A	FMB Dipsomaniac	Sx	Sx, thief	F, Sx	M sist's son dipsomaniac
95	7	1	0	1	1	2	2	N	x	—		Tp	x	—	
97	9	3	0	1	1	2	2	Sx	—	—		Tp	—	—	
103	8	5	0	0	1	0	2	N	—	—		Tp	Tp		(Fig. 11)
42:111	4	0	0	2	0	2[4]	0	Tp	—	—		x	—	—	
Totals	154	20	21	21	38	35	19								

For interpretation of abbreviations see bottom of Tables II and III.

TABLE V

List of Fraternities from One Uncontrolled Parent all of whose Members are Uncontrolled (in Table IV)

	No. Available in Fraternity	No. Uncontrolled
Family 24	2	2
Family 40	2	2
Family 45	3	3
Family 73	2	2

TABLE VI

List of Fraternities from One Uncontrolled Parent Containing Controlled and Uncontrolled Individuals (in Table IV)

Family No.	No. Available in Fraternity	No. Uncontrolled	Family No.	No. Available in Fraternity	No. Uncontrolled
25	6	4	77	4	2
27	5	1	86	8	4
41	5	1	90	13	6
46	4	3	95	6	2
58	2	1	97	6	2
58a	3	1	103	3	1
61	6	4	42 : 111	4	2
76	7	5			
			Totals	82	39

TABLE VII

List of Fraternities with Mixed Progeny from Matings: Uncontrolled × Controlled (in Table II)

Family No.	No. Available in Fraternity	No. Uncontrolled	Family No.	No. Available in Fraternity	No. Uncontrolled
11	4	2			
15	2	1	122	3	1
18	3	1	160	8	2
50	4	3	42:103	5	3
50a	2	1	42:81	3	2
53	4	2	41:120	12	6
70	2	1			
92	3	1			
92a	3	2			
119	8	2	Total	66	30

TABLE VIII

List of Fraternities from Matings: Uncontrolled × Controlled (in Table III)

Fam. No.	No. Available in Fraternity	No. Uncontrolled	Fam. No.	No. Available in Fraternity	No. Uncontrolled
7	3	1	21:591	10	4
63	3	2	41:120	11	5
117a	5	3	K.P. 33067	1	1
137	4	1	K.P. 35943	1	1
146a	3	3	K.P. 54826	1	1
153	4	2	K.P. 55464	3	1
153a	5	3	K.P. 57669	1	1
154	3	1	K.P. 57669a	4	2
156	8	4	K.P. 61790	3	1
161	6	2	K.P. 62405	4	1
			Total	83	40

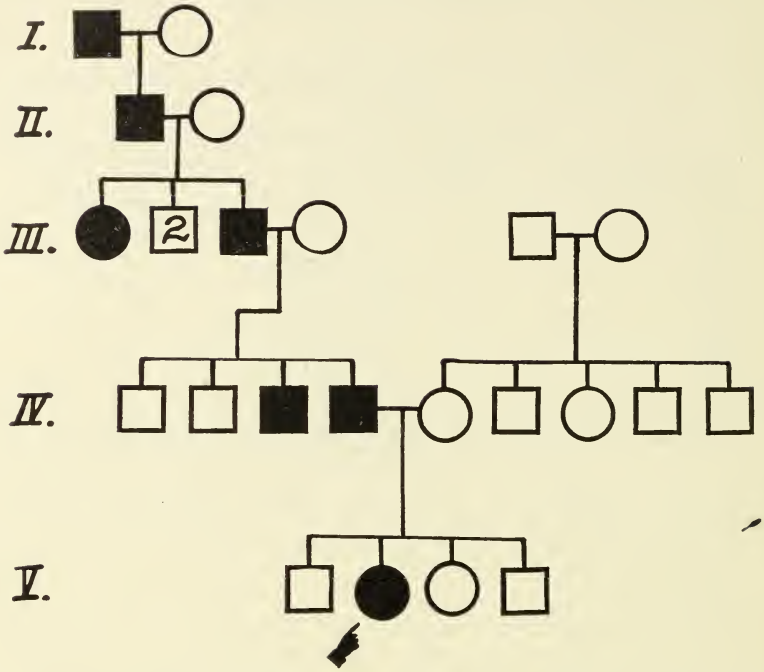

FIG. 1. Family 92. The patient (V 2) is a girl of 20 who had winning ways as a child, but was slow and lazy at school, and early began to run the streets. Placed by her father in a boarding house at the age of 12 she began an active sexual life. Is now lewd in thought, speech and action. She has *a violent temper quite uncontrolled. When angry she will throw anything she happens to have near at hand at the one who offended her.* Of late she has shown signs of insanity; *becomes angry and excited without cause.* She passed the Binet test very well. Her eldest brother is dissipated and nomadic; her sister is in high school but wild and probably Sx. Her younger brother at 12 years is very unmanageable; does average work at school.

The father as a child was hysterical and unmanageable. Sent to a technological school he divided his time between reading and women; is a tall, cultured man; *has a violent temper,* and will throw things around on the slightest provocation; is nearly blind from reading at night. One brother is a clergyman of high standing; another a man of excellent intellectual attainments, who has the reputation of being *quick tempered,* a professor in a State University. The father's father (III) is a man of high culture; was formerly professor of languages, and has a *violent temper;* his sister is a woman of brilliant intellect, eccentric, with a very *high temper so that she would get into a rage over nothing.*

The father's father's father was president of a leading Eastern university; he had *a quick temper* but had it under control. His father had *a quick, uneven temper.*

The father's father's mother and the father's mother were of the highest intelligence and entirely controlled. The mother of the patient is an attractive woman, but very erotic; her only sister, at 35 years, has been wild and immoral. She has been subject to fits of elation followed by deep depression; if crossed the least she would threaten suicide. One brother is of bad repute, but two other brothers are of good repute. Though there is much emotional instability on this side of the house, there is no record of violent temper.

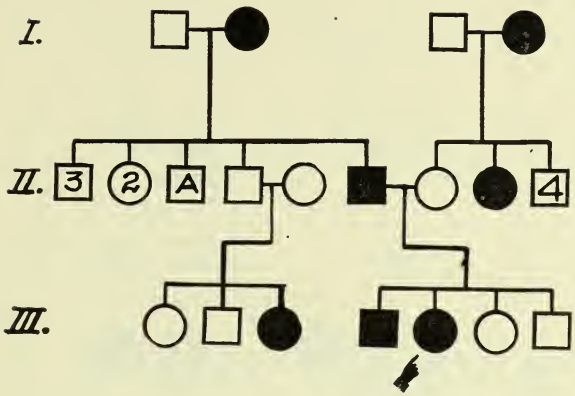

Fig. 2. Family 11. Patient, brought up under good influences, early showed signs of ungovernable temper; and in her school years her temper became worse until people began to think her insane. She began to frequent houses of ill-fame. Placed in a State school she was lazy and indolent. Would fly into a passion under least provocation; pounding, screaming, throwing things around and showing complete loss of control. Placed at the farm house, in a passion she struck a girl with a chair; threatened suicide, tied a ribbon around her neck and attempted to choke herself. Her elder brother shows the same violent temper as the patient; the younger brother and the sister do not seem to be affected.

The father from three years on showed fits of temper in which he lost all control of himself; as he grew up, in fits of temper he threatened suicide. He has a brother who is briefly described as "an efficient man of excellent reputation" who married "a nervous woman of average intelligence." Of 4 children one is "an almost microcephalic idiot and epileptic, who rarely responds when addressed, and has a bad temper, throwing things at any one who offends her." This is one of the "exceptional" cases which it has not been possible to get further information on. In similar cases, a more detailed, subsequent study has revealed the fact that one or other of the parents had similar tendency to bad temper.

The father's mother was quick-tempered and impatient. Of the father's father little is known.

The mother is a woman of good repute, who had a good influence on her children as well as her husband. She had a sister who "would fly into violent fits of temper without cause"; considered by some to be insane. There were 4 brothers who were self-controlled.

The mother's mother was subject to outbreaks of violent passion without cause so that none of the family can live with her.

The mother's father was of good repute.

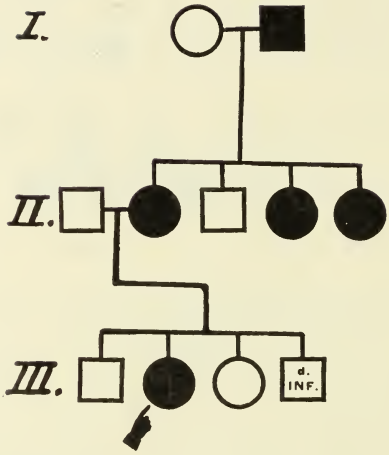

FIG. 3. Family 18. The patient, now aged 20, reared in poor environment, was erotic as a mere child. She is very emotional, gets angry without cause and shows violent temper. Her brother was mischief-loving as a boy and has now joined the army. Her sister is foolish and unambitious but apparently not subject to outbreaks.

The father is good-natured, irresponsible, untidy. The father's mother's father's father was an epileptic.

The mother early showed erotic tendencies, had a violent temper and was extravagant. Her brother wandered to the West. Her elder sister had a violent temper and so had the younger, who is always unmanageable.

The mother's father was wild, unmanageable and was known as "rowdy Dan" which is assumed to imply a bad temper. The mother's mother was a woman of bad character, a spiritualist and clairvoyant, who used to go into trances and give mediumistic seances.

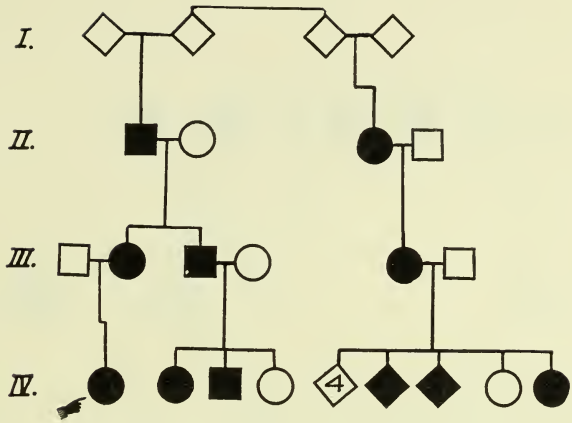

Fig. 4. Family 26. The patient, now 16, brought up under fair conditions, attended school regularly and did fairly good work with little effort up to the first year of the high school when she was asked to leave on account of her sexual offences. At home she showed *loss of temper* toward her imbecile aunt. At the Institution she has given no trouble except for occasional obstinacy.

The mother is troubled with sick headaches which last for several days; has an *exceedingly violent temper which she loses easily*, storms and swears. She has a brother who has *a violent temper* under the influence of which he throws things and will beat and kick his 15-year-old daughter. His eldest son when a mere baby would beat his head on the floor if not given his own way; he is obstinate, *quick tempered and profane when angry.* The daughter is very quick tempered and throws her little brother around when angry. She swears and is vulgar; is fond of boys and frequents questionable resorts.

The mother's father had a violent temper; would jump up from reading the Bible, *cursing and swearing;* was obstinate and disobedient from his youth up. One of his brothers was an epileptic; another brother has a periodic *violent temper;* a sister is *unable to control* her temper. (Not shown on chart.)

About the mother's father's parents we know nothing; but the mother's father has a first cousin (II 3) who has an exceedingly violent temper. Her daughter, likewise, has a very violent temper and is very religious. One day she got up from the table and went into her room and threw herself on her knees and prayed to be kept from losing her temper. She laughs very easily. Of her 8 children by a quiet man 3 have violent temper.

The mother's mother was religious but had little influence on her wayward daughter.

The father is unknown.

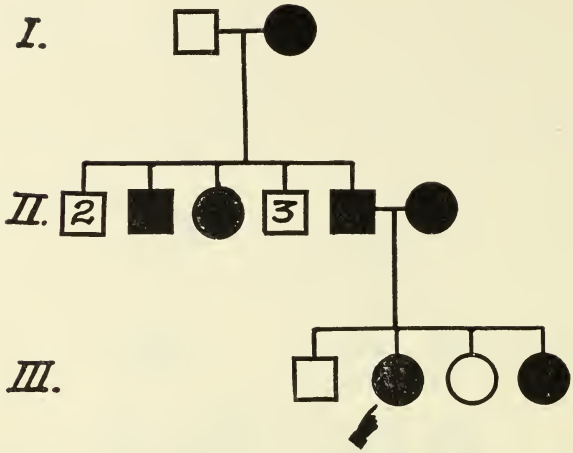

Fig. 5. Family 21. The patient, now 20 years old, early showed signs of an ungovernable temper; after an attack she would sulk for hours and could be aroused only with difficulty from brooding over real or fancied wrongs. At 13 years, she began an active sexual life, was arrested for arson, discharged for want of evidence of evil intent, got to drinking and committed to state care. At the Institution she was, when aroused, most tempestuous, at times almost raving; and used obscene language and oaths freely. After three years of training she began to improve somewhat but at a play given at the school she applauded loudly and finally became hysterical. The next morning she complained of a general numbness and later went into a state of stupor from which she could hardly be aroused. Profound depression set in; expressions of endless guilt accompanied by hallucinations of sight and hearing; transferred to a hospital for the insane. Her younger sister is strikingly like her in looks, manner and disposition. The brother is considered the best of the family. The elder sister is very nervous and hysterical, and suffers much from severe headaches.

The father was brought up under bad conditions; at 17, eloped with and married a girl of 15. His temper became violent. He thought his wife unfaithful and in his jealous rage he would tear and break things and would keep the neighbors awake by noisy brawls or by burning household things. It is reported that he spent one entire night cutting the bedclothes into small pieces and burning them. He has a brother who developed a religious mania and attempted at various times to kill his sister and his brother. For the most part he is unobtrusive but the violent attacks come on suddenly and he loses all control. A sister of the foregoing goes into violent tantrums after which she is laid up for days with sick headache. The other boys are dissolute but only one other shows a moody disposition.

The father's mother was very erratic; had a violent temper and would get excited over trivial affairs; one of her sisters was much like her. Their father had a religious mania. (Not shown on chart.)

The father's father originally had marked mental ability but deteriorated; his father was a recluse.

The mother was always a wild, unmanageable girl with a disposition so ugly that little could be done with her. She was quite incapable of progressing at school. Her father was feebleminded and her mother was of good mentality and disposition.

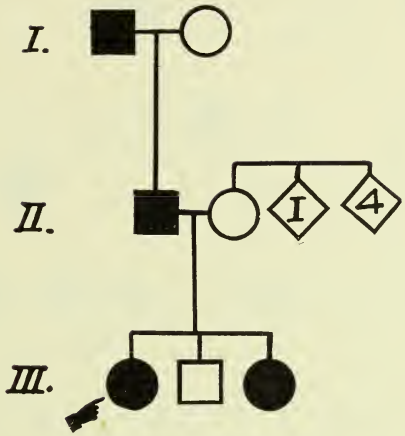

Fig. 6. Family 63. Patient reared somewhat irregularly, partly in an Industrial Home, partly by her mother, who lacked discipline. Her mother and brother tried to punish her but unsuccessfully. Patient *attacked her mother,* broke her glasses and hit her *brother on the head with a bicycle pump.* She was promiscuous with nearly grown boys. Her sister at 8 years is inclined to be stubborn and *has a quick temper.* Her brother works steadily and bears a good reputation.

The father was alcoholic and quick tempered. His father had a violent temper.

The mother is of good reputation but of weak character; one of her sibs was insane.

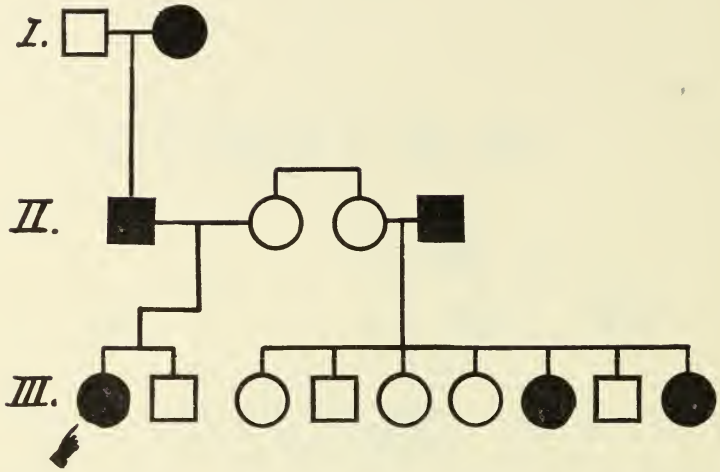

Fig. 7. Family 9. The patient, who from the age of 3 was cared for in a "Home," began to show erotic tendencies at 3 years. At 4 she had terrible fits of temper when she would scream for an hour at a time. At 13 she was placed in a State Institution. Here, if crossed, she (sometimes) becomes morbid, refuses to eat, threatens to kill herself, and gets into such a nervous condition as to suggest a manic-depressive condition; and during these fits she has taken creolin, ink and leaves sprayed with poison. Even now, at 18 years, she is of such nervous temperament that she loses control at the least inciting cause. Her only brother who has grown up is impertinent, disagreeable and untrustworthy but there is no record of outbursts of temper.

The father has always had an ungovernable temper. When intoxicated, he would often break up the furniture with an axe or put the family out of doors in any weather or conditions.

The father's mother has migraine and a very violent temper and is subject to hysterical attacks when she is almost insane, pulling out her hair and gnashing her teeth.

The father's father is a man of criminalistic tendencies, now hiding in the west.

The mother has had hysterical attacks without the violent temper. She would throw herself on the floor and scream for an hour at a time, and this attack would be followed by a deep melancholia when she would not talk to anybody. A brother is stubborn and he and his younger brothers are nomadic.

A sister of the mother married a man who was extremely erotic and had a fiendish temper allied to insanity. Of 7 children two girls have violent tempers; the first in her fit has to be restrained, and it is so explosive that her neighbors consider her insane. The second has "fits of temper" and suffers from headaches. The girls are first cousins of the patient.

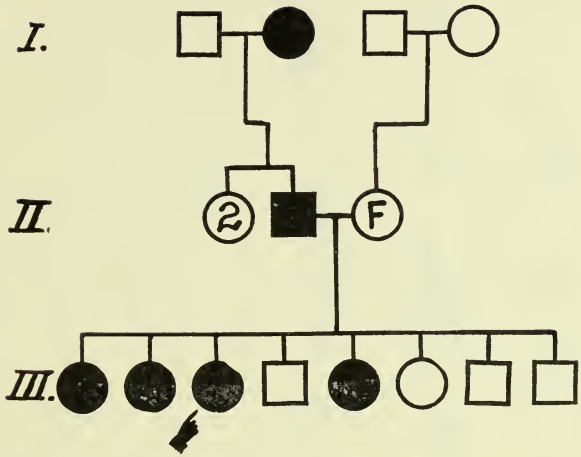

Fig. 8. Family 25. The patient was reared in a fairly comfortable home in a respectable neighborhood but of unintelligent parents. She early showed signs of immorality. At the Institution she is subject to attacks of ungovernable temper and loss of inhibitions, soon over. Her eldest sister who has an uncontrollable temper once hurled a lamp at her paramour. The second sister has a low mentality and a violent temper; will curse and swear on the slightest provocation. The next sister, at 13 years, shows excellent mentality and a very violent temper, is considered the brightest child in the parochial school.

The other sibs have better self-control. Ten others died early.

The father has such a violent temper that he often acts as though insane. He abuses his younger children by kicking them out of the house, striking their heads against the wall, etc. One of his sisters is a fine character; the other is immoral.

The father's mother is said to have had a violent temper, is now demented. The father's father drank and was very immoral.

The mother is mentally deficient but is kindly. Her father went on sprees but her mother was of good repute.

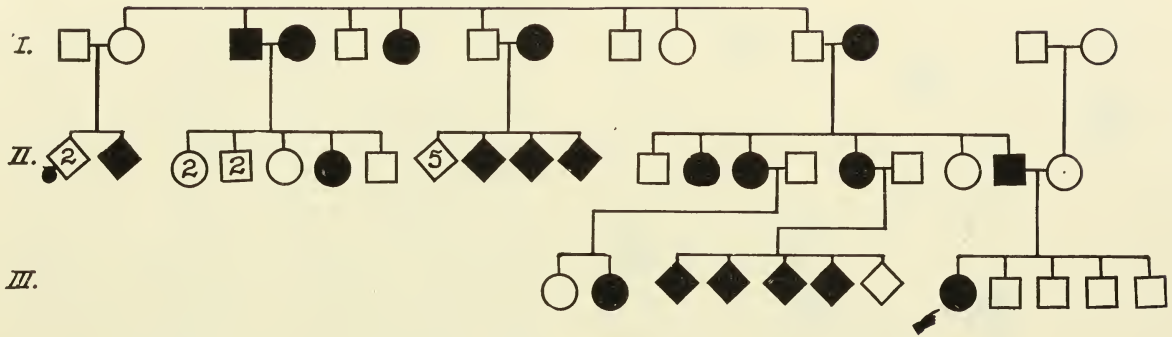

Fig. 9. Family 27. The patient, III 8, aged 21 years, early showed wilfulness and "quick temper." Placed in an institution her "outbursts of temper" gave trouble. She gets depressed, and longs for the fascination of the life of the demi-monde. None of her four brothers show her temper.

The father began early to go on sprees; when drunk he is so violent that he is like a madman and has often had to be locked up. One of his sisters is of a quiet disposition and so is probably one brother, but three sisters have a violent temper. Of one sister 4 of the 5 children have quick tempers and of another sister one of the two daughters has a bad temper.

Of the father's father not much is known. Two of his sibs had violent tempers; and two of them married women of violent temper and had children with bad tempers. A sister (I, 2) of unascertained morals and temper has one child (one out of 3) who has a quick temper.

The patient's father's mother was quick-tempered.

The mother is gentle, over lenient, easily led and her parents were easy-going.

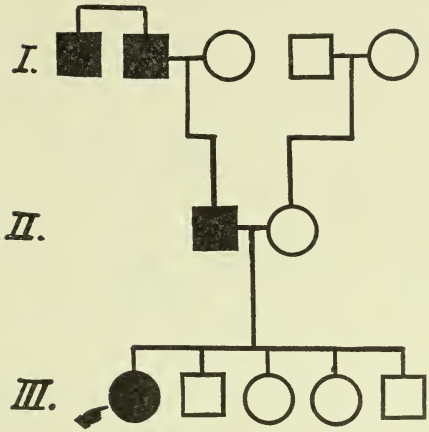

Fig. 10. Family 41. Patient, who is now 17, had all the comforts and luxuries of the average middle-class American home. She was quiet and refined in the house and a perfect tomboy out-of-doors. While always extremely suggestible, docile and obedient when reasoned with, a few minutes later she would emulate the worst child of the neighborhood in all sorts of naughtiness. In school, at 7th grade, considered above the average in ability. Began to steal and to show uncontrollable erotic tendencies. Placed in an Institution, on one occasion, following association with a suggestible comrade, she broke out with such violence that she was transferred to the cottage for incorrigibles. At the new house she went all lengths of penitence and resolved to do better; later she was sent to the State Reformatory. Her mother says of her temper: "She was like her father, lots." Her two brothers are obedient, studious and controlled. The elder sister is attractive, high-bred, spirited, but domestic in tastes. The younger sister had the same impulses as patient to be wild, reckless, disobedient; but she was always fairly well controlled.

The father, of respectable thrifty parents, has shown a tendency to rove, to steal and to drink. He is *uncertain in temper*, moody and talkative by spells. "You never know how he is going to take you." His temper is said to be "pretty fiery." His wife says he is a man who should never drink, because then his temper goes beyond all bounds. When he is perfectly free from alcohol, however, he has fits of temper, and sometimes they are just as bad as when he is drunk but his tantrums and sprees usually coincide. He has frequently broken up the furniture in the house and thrown it outside. His spells average two or three or more in a year. He has a brother moody like himself,—a periodic. Details of the temper of the father's three sisters are lacking. (Not shown on chart.)

The father's father also had a violent temper. "One day he was all right and the next day all wrong." All but one of his brothers had the family violent temper.

The father's mother "had fits," but, so far as known, no bad temper.

The mother is responsible, fairly industrious and ambitious. She is subject to fainting spells but otherwise has good health. She is even-tempered and apparently her family are all "even-tempered and easy-going." The mother's father is a shipmaster; one of his brothers has an epileptic son. The mother's mother is of clean, decent stock.

Not all of the individuals referred to are charted.

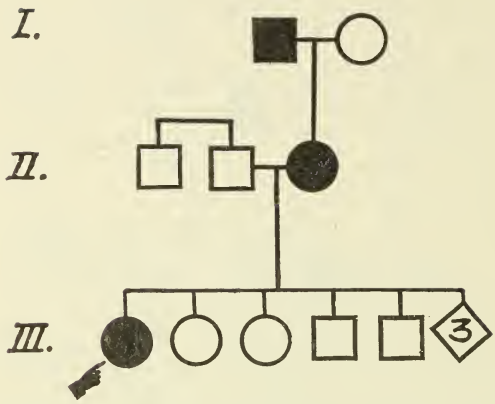

Fig. 11. Family 103. Patient was brought up under favorable conditions; in a good neighborhood, attractive home and congenial family life. She was always changeable in mood, sometimes good and sweet, again *cross and ugly, disagreeable and obstinate,* the contrasts were so sharp as to suggest a double personality. The ugly periods would generally come at the time of menstruation. They would be two or three days in gathering; then would come the crisis and it would take a day or two to calm over, with perhaps a little rebound before it was all over. A slight and unexpected cause would precipitate the crisis. Later she was immoral with boys, and was caught lying and stealing at home. At the Institution she continued to show her alternating periods. One day she was acting badly and the officer threatened to demote her. The crisis broke, "I want to go demoted. Send me demoted," etc. When in a crisis she will say: "You had better get away from me, I'm off." She does good work, during her quiet periods, in the eighth grade. Three of her sibs are in the west, unknown. The two sisters who are at home have a good reputation; the two brothers are troublesome and mischievous.

The father bears a good reputation and is quiet around home. His brother is a laborer who married a wayward woman and has 3 wayward sons, but none of this group has violent temper.

The mother is a woman of good reputation but with *a hasty temper* that does not last.

Of the mother's father it was said that his *disposition changed with the waxing and waning of the moon.* Sometimes, for days at a time, he would be cross and disagreeable; everything would make him angry. Then for days even the slightest thing would make him happy. The resemblance to him of his grandchild has been remarked upon.

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